

The MILLING WORLD

and CHRONICLE OF THE GRAIN and FLOUR TRADE.

PUBLISHED EVERY THURSDAY MORNING.

VOL. X.—NO. 12.

Buffalo, N. Y., July 17, 1884.

{ \$1.50 Per Year.
Single Copies, 3 Cts.

THE KEISER TURBINE WATER WHEEL.

THE illustrations on this and the succeeding page represents the Keiser Turbine Water Wheel, in perspective, section, and partly in detail. Although a comparatively new wheel it has had, we are told, a very gratifying sale, and has very fully borne out the representations of the manufacturers in actual and continued duty.

Fig. 1 is a perspective view of wheels over 18 inches in diameter ready for shipment. The simplicity will be manifest, there being but few moving parts and these are heavy, strong pieces; no part has been omitted that is necessary or advantageous to the economical application and use of water. Fig. 2 is a vertical section through the middle from top to bottom and viewed facing this cut section, and Fig. 3 a horizontal section or a view taken on the cut surface as if the whole top of the wheel and casings were removed. Parts that are marked alike are the same in all the figures. A 1 is the wheel shaft, the swelled portion marked A 3 the step or toe which forms the lower bearing. A, Fig. 2, is the hub and disc of running part or wheel proper, which together with the buckets A 2 and ring A 4, Fig. 2 and 3, are cast in one piece, binding all firmly together, producing a running part of great strength and truth. The hub is first bored, key-seated and wheel fastened to the shaft by the key A 5, when it is turned off in the lathe on its own shaft, after which the buckets are finished and shaft and wheel carefully balanced to insure their running true. B and B, Fig. 2 are the top and bottom rings and B in Fig. 3 bottom ring, B 1 the guards or sides of chutes, B 2 the cross bar in both figures, and B 4, in Fig. 2, the draught tube. These are all cast in one and form the inside casing; this is placed on the boring mill in the same position as in Fig. 2 and bored out inside to receive the wheel; the cross bar bored for the nigger-head or step block B 3 upon which the wheel shaft runs, and turned off on the outside, faced on the top ring near the outer edge and directly under B of the lower ring upon which the wheel case rests on the penstock floor. B 5, Fig. 2, is the stop plate held in position by bolts (not shown.) This plate determines the extent of motion in the outside casing. B 7, Fig. 2, is the pinion shaft and passes through the stop plate into a long hub cast on the inside casing and is made a driving fit, thus the shaft is stationary while the pinion B 8 turns on it moving the outside casing by gearing into the rack C 2. The pinion has a hub cast on it cored out square to receive the gate rod. C 3 are the bolts that fasten the rack to the outside casing. C and C, Fig. 2, are the top and bottom rings, and C, Fig. 3, the bottom ring of outside casing, and C 1, in both figures, the guards or sides of chutes of the outside casing and are cast in one piece. This casing as shown in Fig. 2 is inverted and placed on the boring mill, bored out inside, the ledge resting on inside casing faced off and bored to receive the ends of spider arms I. D, Fig. 3, are the gates which are cast on edge of a special grade of iron, the inner ends of which work in semi-circular pockets formed by the guards B 1 and move about the bolts E, Fig. 2 and

3, as a hinge, making an almost indestructible joint. The parts D are the guiding horns of gates and between them and the gates proper, the inner ends of the guides F, Fig. 3, work. These latter are also of an extra

the hands of a watch, that as the guides are fastened to this casing they will move with it, and as the gates fit over them and are hinged at one end and free to move at the other, they will also be moved, making the

prevents leakage on to the wheel and at the same time relieves it of all downward pressure of the water; as the water enters the chutes all around the wheel in a horizontal direction and is turned down by disc and hub of wheel, creating a tendency to lift same and all shafting and machinery attached, and relieving the step or toe of considerable pressure. This lid, H, is bored out in the neck, H 1 put on a mandrel, the neck turned off and faced directly above the letters H H, and also faced off with a recess on the lower edge fitting into the inside casing and held down by the bolts H 2. By this plan the lid must always come to its place, and be central without being set or trammed, no matter how often removed. I and I 1 the spider arms and hub are cast in one with the guide box above it and together are called the spider. This is placed on the boring mill in a position inverted to that shown in Fig. 2, the hub I 1 bored faced off to fit the neck of lid H 1 and surface above H H, and spider arms turned at the offset where they fit the ledge of outside casing; this is now put over the neck of lid and fastened to the outside casing by the bolts I 7. I 6 being a distance piece which is fitted between the spider arms and casing so as to raise the latter to just clear the ledge and also to leave a place for adjustment should the hub I 1 of spider or surface H of lid wear in time. As will be seen by this arrangement the lid brings the spider central, and the spider in turn brings the outside casing central; all weight of the latter and attached parts is carried by the spider arms and rested on lid directly around wheel shaft, insuring a gate movement that works with ease and certainty without interfering with the accessibility to the wheel or any part of the gate movement. In the smaller sizes the spider is omitted, it being deemed unnecessary on account of the lightness of their outside casings which are carried by the ledge on inside casing. The upper portion of spider I forms the guide box in which are the wooden blocks I 3, iron followers I 4, and set screws and jamb nuts I 5; this forms the upper bearing for the wheel shaft and is adjustable in every direction. I 2 is the washer containing the packing which prevents leakage down past the wheel shaft and is the cover of the bearing. All parts marked J belong to the coupling. J 1 is the lower half of same and J 3 the key fastening it to the wheel shaft. J 1 has a hub cast in between the prongs, making it longer through the center than the upper half J 2. The wheel shaft, however, only extends into it half the length of coupling; the upper half and remaining portion of the lower being bored to fit the shaft intended for the upper half which is bound to bring this extension of shaft in line with the wheel shaft and to remain so—the prongs of coupling having nothing to do but to drive. Fig. 4 is a horizontal section of wheel same as Fig. 3 except that it shows the wheel at work with the gates full open and the action of water upon it. This figure also presents the most distinguishing feature of the Keiser Turbine, the long taper chutes, more clearly. The fine lines indicate the currents of water which enter the chutes at C with comparatively little motion, increasing towards B as the chutes become more contracted and reaching its highest velocity in passing their narrowest ends at the periphery of the wheel,

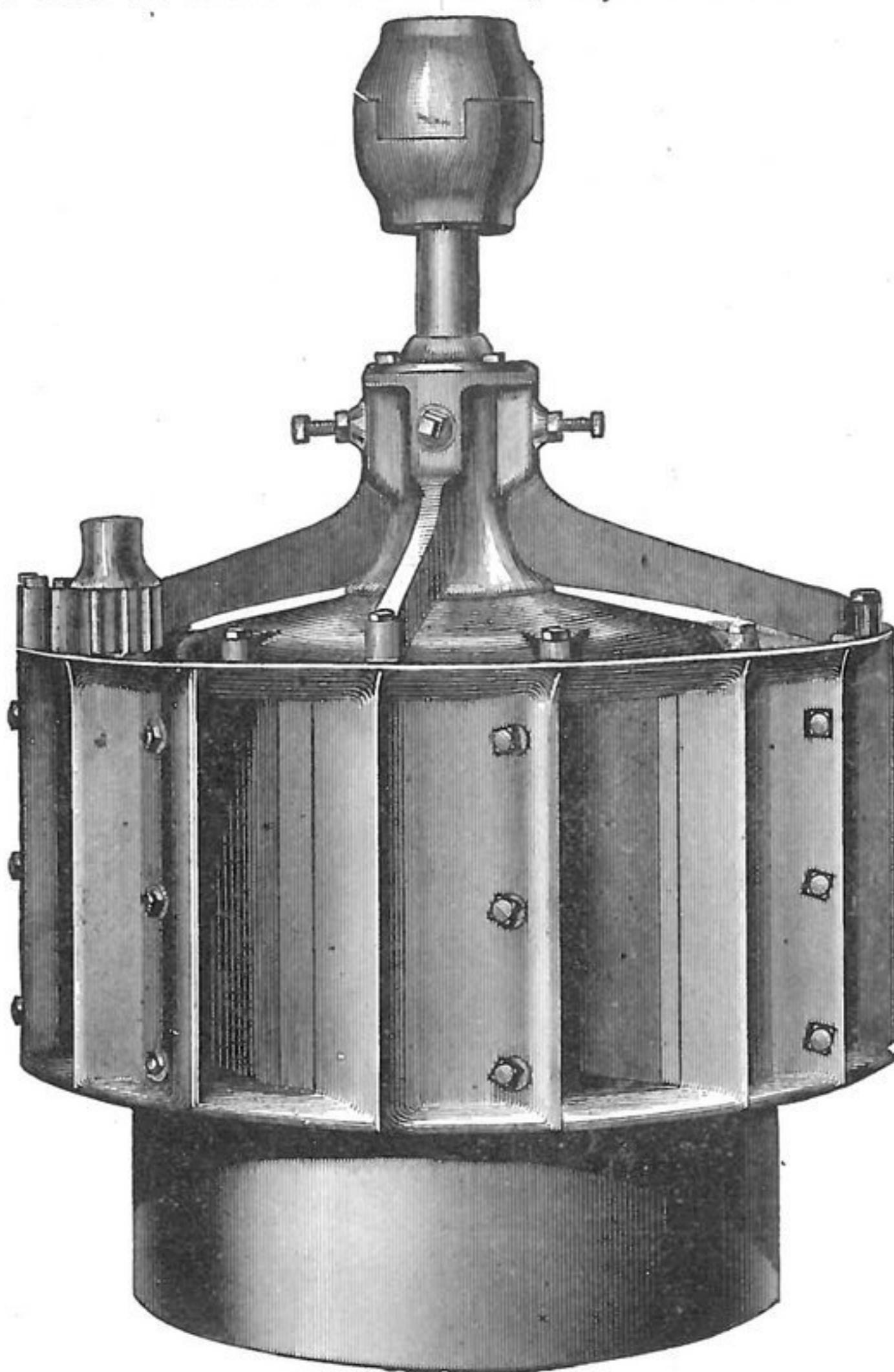


FIG. 1. PERSPECTIVE VIEW OF WHEEL, READY TO SHIP.

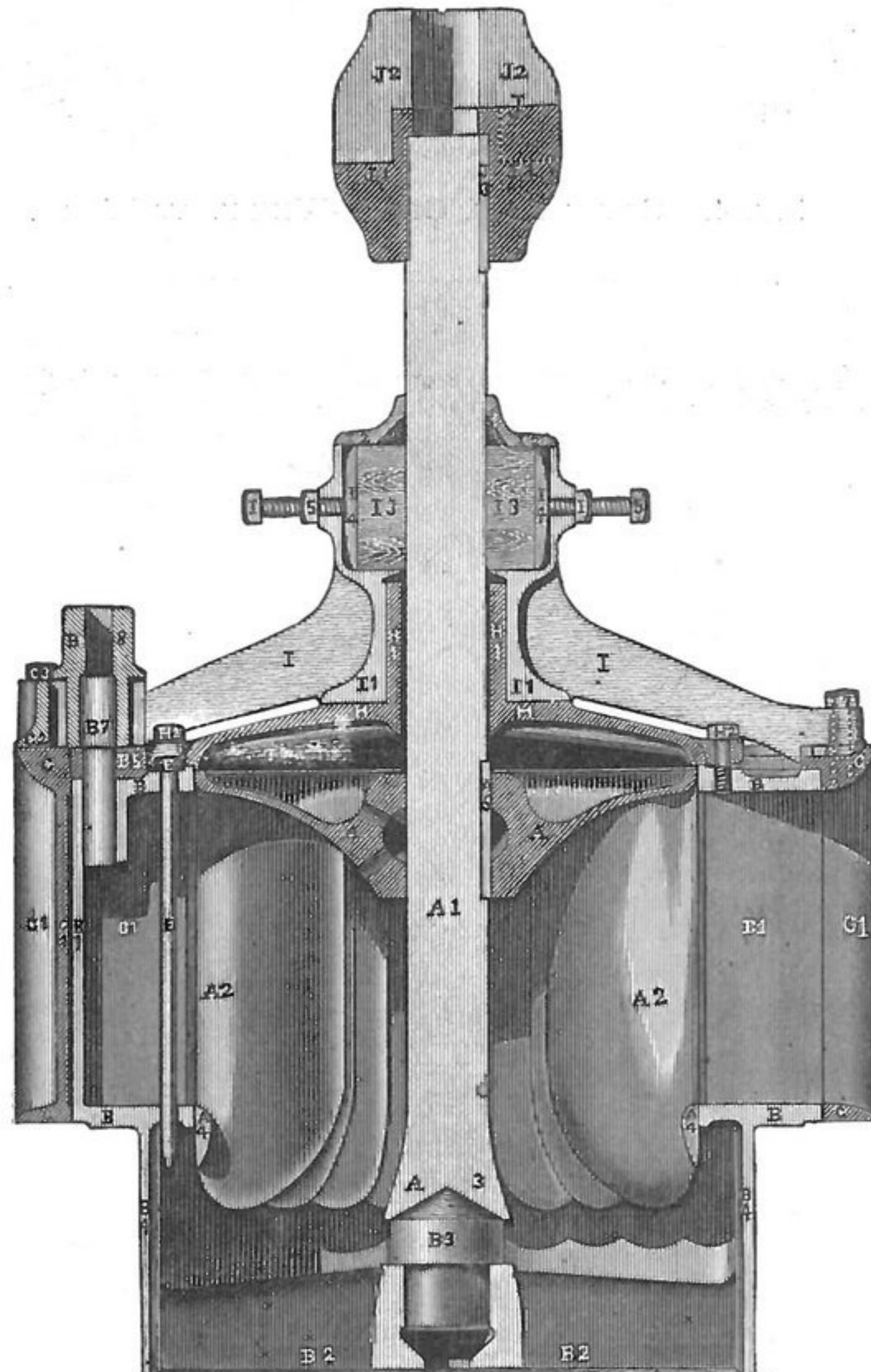


FIG. 2. VERTICAL SECTION OF WHEEL.

grade of iron cast in a special way and fastened to the outside casing by the bolts G, also shown in Fig. 1.

It is apparent now from Fig. 3 that if the outside is moved in a direction opposite to

passages or chutes B C narrower and causing less water to be delivered to the wheel when at work, but maintaining the original taper chute principle down to a very small fraction of gate opening. The lid H, Fig. 2,

striking the buckets on their extreme ends where it is most effective and colliding with the water between them, causing the wheel to revolve in the direction of the arrows near A.

The course of the water, however, after once entering the wheel proper is inward from Y to X, and at the same time also downward, while a portion of it passes downward and outward. That moving inward has accomplished its work after passing the points X, and has very little motion left in the direction Y to X, the inner ends of the buckets merely run away from it as shown by the arrow at W. The motion of the water near the shaft A 1 is wholly downward as well as that which passed downward and outward after leaving the wheel, thus forming a solid mass of water in the draught tube Fig. 2 with a downward motion only. The hinged gates as well as the guides F are made to have room on top and bottom edges so as not to rub on the inside casing rings B and B, Fig. 2, and to allow the water to get behind them, forming the dead water spaces V and V Fig. 4; this balances the gates and guides by allowing equal pressure on both sides, and makes them easy to operate. Fig. 5 shows the gates closed. All motion has ceased and water and wheel are at a stand still. The inside casing being nicely finished on its outer circumference and the outside casing carefully bored out to fit over it, make, with the heavy guides F fitted against the inside casing and bolted to the outside, a water tight gate which does not become leaky from use.

It will be noticed that all the gates work together simultaneously, causing an even delivery of water all around the wheel at any stage of gate, and should anything ordinarily carried with the water, such as bunches of leaves, straw, twigs or sod, lodge in the chutes, by partially closing them such trash will be compressed and upon opening again carried through the wheel. The builders of this wheel, the Keiser Machine Co., Allentown, Pa., will take pleasure in furnishing any further desired information to our readers.

HOW TO DETERMINE THE AD-MIXTURE OF ORGANIC OR IN-ORGANIC SUBSTANCES IN RYE AND WHEAT FLOUR.

(Prize essay of the German Millers' Association by Dr. L. Wittmack, Professor of the Agricultural College at Berlin.)

Translated by THE MILLING WORLD.

V.

It has been stated by M. Victor Berthold that the finest flours produced by high milling do not contain anything besides starch and gluten, and that hairs and bran particles are found in the finest flours only when ground by the flat milling system. He states that he found in wheat flour No. 0-2 and 0 1-2 and in rye flour No. 1-2, nothing but starch and gluten.

With regard to the bran particles, M. Berthold is correct; these are exceedingly rare in high milling products, but fragments of hair, even short entire hairs, are to be found in the finest grades of Budapest flours. The absence of bran particles explains itself when we consider the careful purification of the middlings in high milling. But, as Berthold states, the finest flours are perhaps, never adulterated or used to mix with others, and the above assertion has no practical value.

In order to meet the objection that the hunting for the hairs in flour is a tedious undertaking, I have discovered another method to detect the presence of wheat in rye flour. This is based upon the difference in the degree of temperature necessary to transform wheat or rye flour into a paste, and is manipulated as follows: Weigh a sample of 1 g. of the flour to be tested; add slowly and under constant stirring, 50 ccm. (g.) of

water, and heat the mixture over a water bath to $62\frac{1}{2}^{\circ}$ C. ($144\frac{1}{2}^{\circ}$ F.) The simplest way of doing this is by using a large goblet full of water, which can be warmed over an alcohol or gas flame, for the water bath, and a smaller glass, which contains the flour mixture, and can be suspended inside of the larger receptacle. During the heat-

soon as this is attained, the test glass must be removed from the water bath and placed into cold water to prevent any higher heating than is necessary. With this our sample is ready for microscopical examination.

The rye starch grains have all expanded under the temperature of $62\frac{1}{2}^{\circ}$ C.; some even have burst, and the shape of all, which

distinct, dark margins, while the rye starch grains, even if they are not broken up, have indistinct and diffuse margins. Of course a few wheat starch grains have expanded and are changed in appearance, but they are the exceptions. As a rule, pure rye starch, after being mixed with water and subjected to a temperature of $62\frac{1}{2}^{\circ}$ C. presents under the microscope a number of ruptured semi-hydrated, bag-like, soft grains, while wheat has roundish, generally well preserved, starch grains after being subjected to the same conditions. They retain their shape better if the water is heated to 60° C. only, but such temperature leaves too many rye starch grains unchanged, and is therefore not so advisable.

A trial to that effect made with pure rye and then with pure wheat flour, brings out the difference more plainly. An addition of 5 per cent. wheat flour of No. 0-2 to rye flour of No. 0 and 0-1 can be detected with ease in this manner. With flour made of Hungarian hard wheat the test is even more successful, but it can be relied upon with any other kind of wheat flour.

As stated before, a few rye starch granules do not hydrate, i. e., transform into a pasty mass, at a temperature of $62\frac{1}{2}^{\circ}$ C., not even at 70° C., which is generally accepted as the temperature of hydration. Both in rye and wheat we find a few grains of starch which retain their full form at 90 to 95° C., but these are exceptions, and we must be guided by the appearance of the majority. It is advisable to test three samples at the same time: 1) pure wheat flour, 2) pure rye flour, and 3) suspicious sample. A large goblet or other glass will do the service of the water bath, and the three smaller receptacles can be suspended by wires or a similar arrangement in the larger one. Van den Wyngaert, the president of the German Millers' Association, has devised an improvement in this method. Instead of the fragile thermometer, which breaks easily, and always requires care in reading the temperature, he suspends a test tube filled with palmitic acid in the water bath. This acid melts at exactly 62° C., and the test mixture has been subjected to the proper temperature as soon as the acid liquifies. In this manner a thermometer is not used at all.

If we have no scales delicate enough to weigh 1 g. (0.03527 ounce) we can equally well use larger quantities of flour, 5, 10, 15 g. or more, with a correspondingly larger quantity of water. Instead of a large goblet for the water bath, any large pot will do, and smaller dishes for the test mixtures, the only precaution necessary is, that the walls of the latter be of equal thickness to insure an equal temperature to the contents, if more than one sample is to be tested at the same time. The larger the water bath, the more constant the temperature. The flours to be tested must hold an equal quantity of moisture, and to insure that, it must be kept in a dry place, in winter in a warm room, for at least twenty-four hours prior to the testing. The test is reliable even if we take any odd quantity of flour in water, but for exact work, the samples must be weighed carefully. As a matter of course, barometric pressure influences the degree of temperature, and in places of high altitude this must be taken into consideration, but ordinarily, we can ignore it. All the above applies to the large-sized starch grains; the small ones expand but little at a temperature of $62\frac{1}{2}^{\circ}$ C., but we need not devote any attention to them, as their size will prevent any mistake.

Statements about the temperature of the hydration of the different starches, published by Lippman in 1861, have been reprinted into the largest number of technical books, and nobody has ever questioned their correctness. He gives 50° C. as the temperature

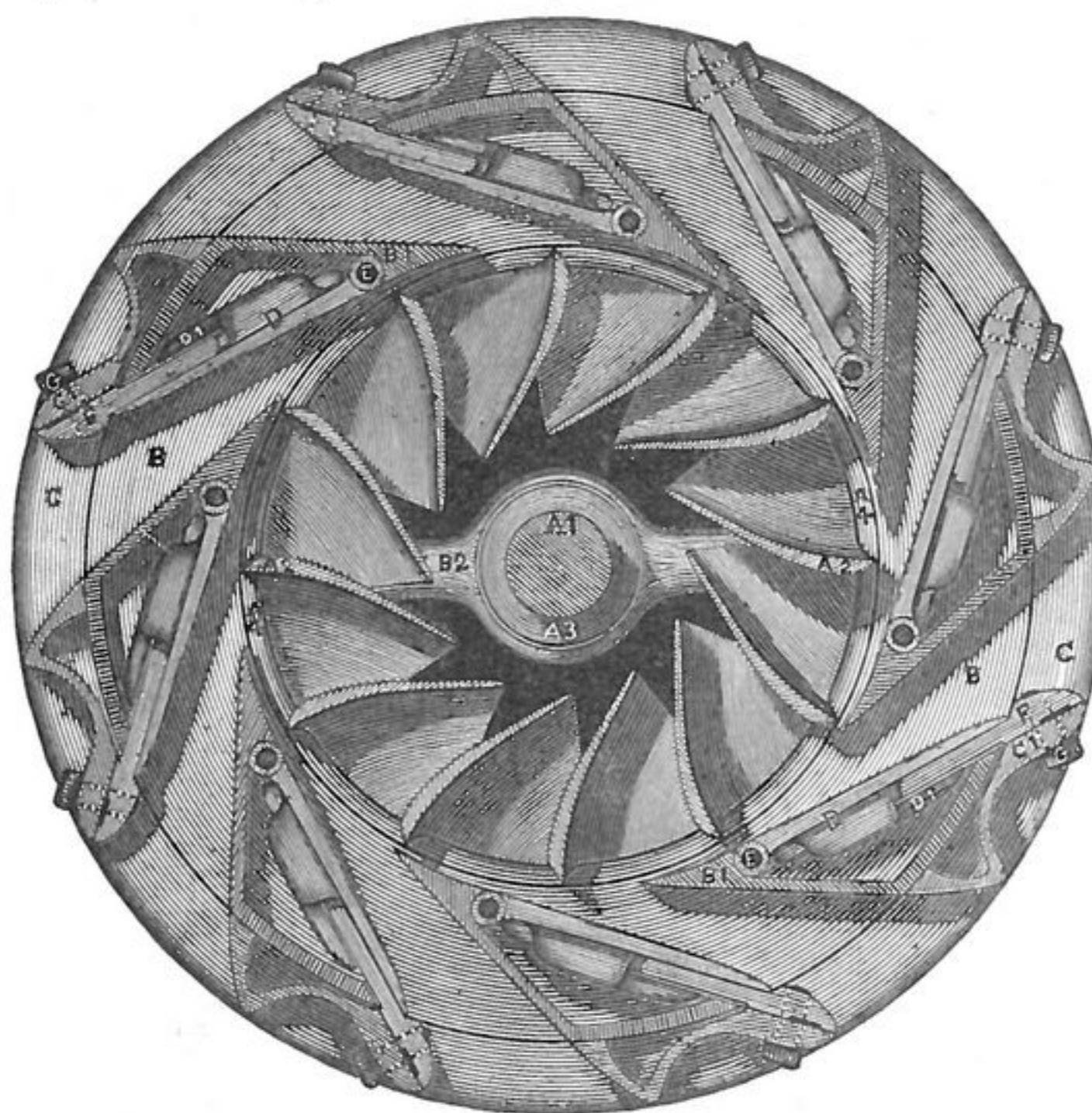


FIG. 3. HORIZONTAL SECTION OF WHEEL.

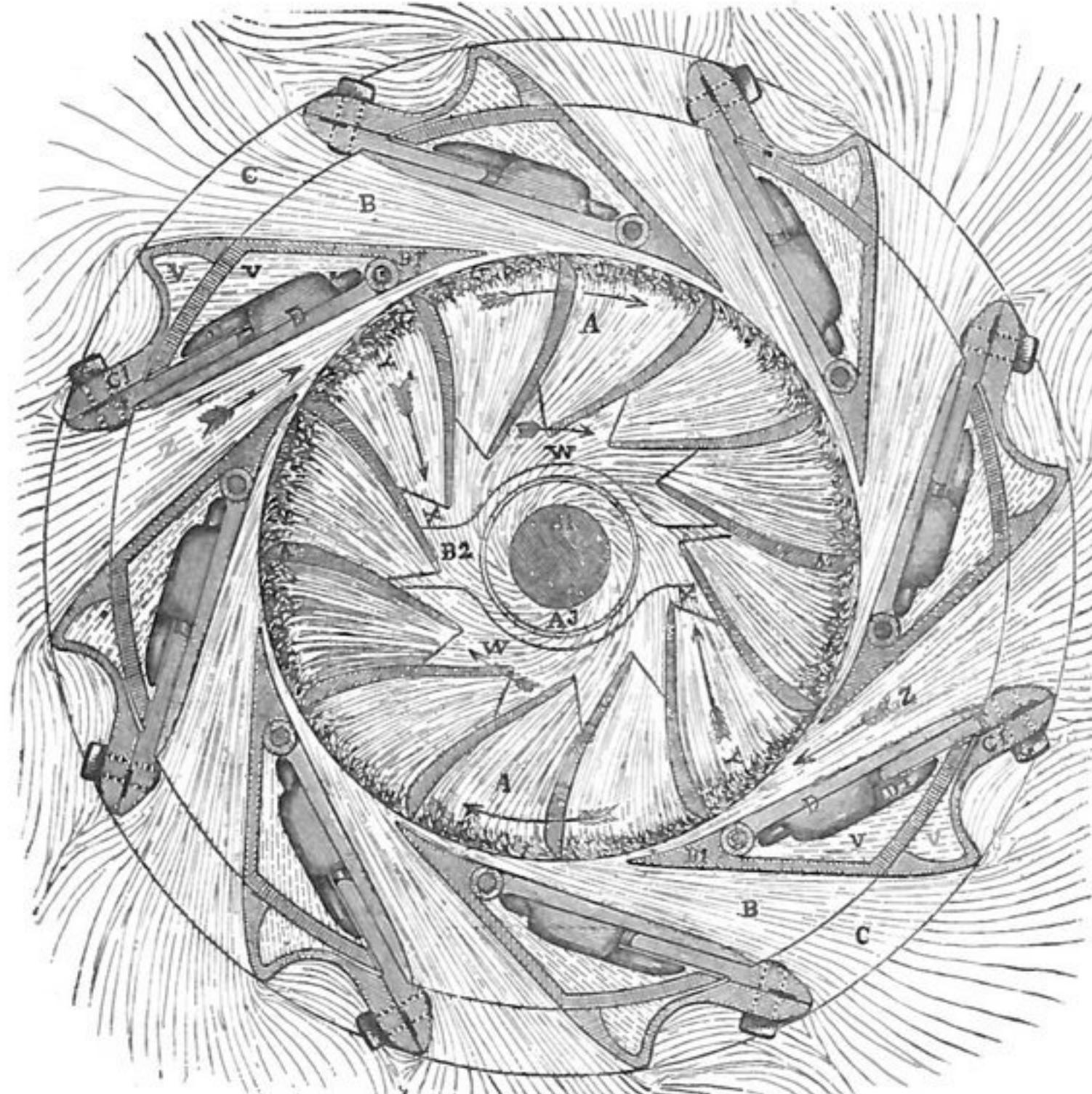


FIG. 4. GATES FULL OPEN—WHEEL AT WORK.

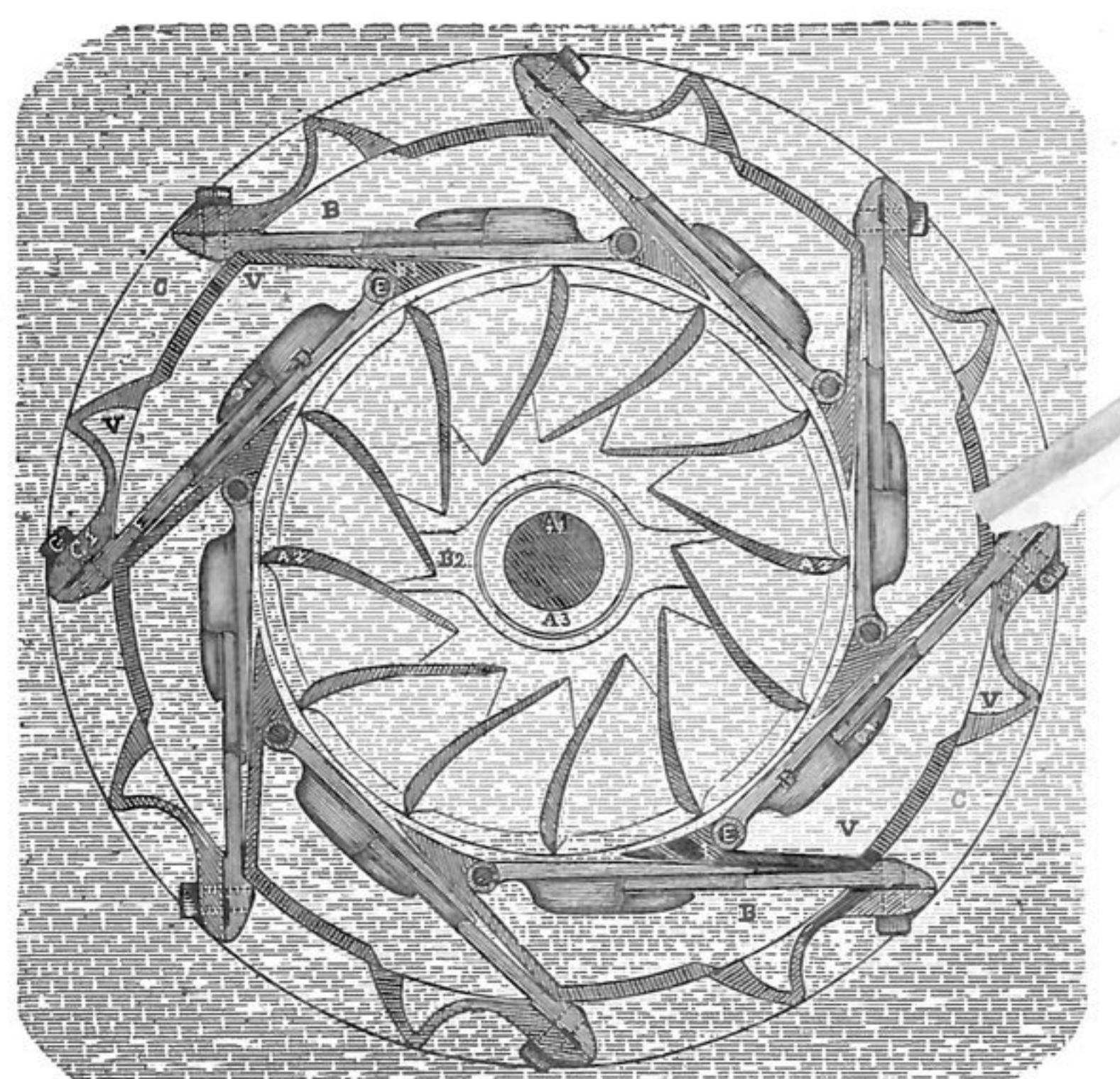


FIG. 5. GATES CLOSED.

ing the sample has to be stirred constantly, and this is best done by means of a small thermometer, which then remains constantly in the test glass, and affords an opportunity to watch the temperature with care. When the thermometer registers 60 or 61° C. we extinguish the flame, for the heat of the water is sufficient to raise the temperature of the flour sample to the desired $62\frac{1}{2}^{\circ}$. As

was lenticular before, has been altered beyond recognition; only exceptionally will we find one granule which has not altered its appearance. The wheat starch grains on the other hand undergo no such transformation. The largest part of them remain unaltered and reflect the light like the normal starch; consequently we see under the microscope the wheat starch grains with

at which the hydration begins in rye starch, and 55° C. at which it is completed. For wheat he has 65° C. as the beginning, and 67½° C. as the ending of the process. For rye starch I have found that the hydration begins at 60° C., for wheat I also obtained 65° C. although a few grains commence to hydrate at 62½° C.

The heating in the waterbath has additional advantages. First we detect in the sample of pure wheat, the formation of a white froth on the surface, considerable more than in rye flour, and of medium quantity in the mixed sample. Besides this we find, when mixing the flour sample with the necessary water, that pure rye flour gives a more sticky, adhesive and lumpy mixture than wheat, in which the starch grains are easily mixed with the water. Mixtures of wheat and rye partake of both peculiarities.

If we look at our hydrated samples after a few hours, we find that the watery portion in the pure rye is milky, or at least opaque; that from pure wheat is either clear or transparent, whereas the liquid from the mixed sample is a medium between the two. Of course all these signs are of minor importance, but in their combination they are useful to the practical man.

The best of this hydration-test is it brings nearly all the hairs to the surface, together with a number of bran particles. A small quantity of the above mentioned froth, placed under the microscope, enables us to find hairs and bran particles with but little trouble. Of course, not all the hairs rise in this way, and a few can be found in the sediment at the bottom of our test glass. If we now add our sulphate of anilin, the hairs of wheat color distinctly yellow, and their detection is easier still. If the sulphate of anilin does not bring out the desired coloration, the addition of a drop of dilute sulphuric acid will have the desired effect, as the anilin really acts only in an acid solution; generally this addition is not necessary.

One great fact must be noted in this connection, namely, that investigations of flour under the microscope can be made on very minute quantities only. Upon the glass slide, which is to hold our preparation, we mix a minute quantity of flour in one drop of water and upon this we place the so-called cover glass, a small, very thin glass plate; a slight pressure brings the two glasses together and our specimen is ready for the microscope. It is not advisable to place dry flour under the instrument; the hydrated starch, on the other hand, is ready without any further dilution.



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710

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262

YOU CAN BUY THESE CHEAP.

1400 4x8 elevator cups. { made by W. P. Myer, 1300 4½x8½, { of Indianapolis, Ind.

Three McCully Corn Cob Crushers.

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1018

INDIANA MILL PROPERTY AT A BARGAIN.

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913

MILL FOR SALE.

I want to sell one-half interest in the "Brick City Mills" and water power. Mill building is of brick, 40x80 feet in size, and six stories high. Fitted out complete with seven sets of rolls and four pairs of burrs. Thoroughly repaired last August at a cost of between \$4,000 and \$5,000. Turkey river is here 200 feet wide, with rock bottom and sides, making one of the cheapest powers to maintain in the state. The power is double the amount ever used. Price for half interest is \$11,000. Address J. G. BOTSFORD, Clermont, Iowa.

913

NIAGARA MILLS TO RENT.

For a term of years. Having seven run of stone and machinery for flouring. Is very conveniently located in the City of Lockport, N. Y., on the Erie Canal. Operated by a Lefell turbine. Buildings of stone, slate roofs, ample storage capacity and good water power. Wheat taken directly into the mill from boats, also from teams. Prospects for a large crop of wheat good. Two railroads can take flour in any direction. This is the time to get ready for grinding the new crop. Terms liberal. Apply to L. A. SPALDING, Lockport, N. Y.

812

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We have recently remodeled a hominy mill with flour machinery, at Omaha, Neb. Omaha has 50,000 people, and is without a flouring mill. Kansas and Minnesota flour sells wholesale in sacks at \$8.50 per hundred weight. Northern Nebraska hard spring wheat and Southern Nebraska winter wheat can be had in quantities in Omaha at 75 and 80 cents per bushel. We will sell the property at a bargain, on easy terms, to parties who have money to operate. For further particulars address SINKER, DAVIS & CO., Mill Builders and Furnishers, Indianapolis, Ind.

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1213

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71f

VALUABLE MILL PROPERTY.

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614

"GRAND VALLEY MILLS" FOR SALE.

At Triplett, Mo. Mill building is 28x30 feet and four stories high. Built by G. & W. Todd & Co., of St. Louis, Mo. It has one pair of 3½-foot stones for wheat; one pair 30-inch, for corn; a two-reel chest, 24 feet long; a No. 4 Martin's centrifugal reel; a No. 1 Smith purifier; a Eureka smutter, and a corn sheller. All new and in good running order. Engine room, 18x28 feet. Engine, 12x20; boiler, 38 inches by 12 feet, tubular; all new and in good order. Located in the town of Triplett, Mo., 75 feet from Wabash railroad track. Town contains about 700 inhabitants. Mill has a good local trade established, and in a good wheat-raising district. Abundance of water, and fuel plenty and cheap. All the facilities for doing a No. 1 business. Satisfactory reasons given for selling. A good opening for a practical miller for doing a good business. For terms and price address MADDOCK & SHIPP, Triplett, Mo.

912

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"THE MAN WHO ONCE DID SELL THE LION'S SKIN WHILE THE BEAST LIVED, WAS KILLED IN HUNTING HIM."

The true situation is this: We beat them in the U. S. Court in '83, two eminent Judges on the bench, by whom that famous utterance was made, "Case is as far ahead of Smith as Smith is ahead of Stoll." In that trial we simply defended ourselves, but warned these people, the Smith Co., that if they did not keep quiet we would attack and overthrow their patents. This we are now doing, and "have now reached such a stage as leaves no reasonable doubt" that it will not be long until there will be no Smith patents to threaten and alarm millers under. We know whereof we speak, and so do they. They refer to their Canada suits, where the millers were using the Smith brush, the brush is not in contest with us. We don't use a brush, we have something better, and in our fight we have weapons in our hands that the Canada folks knew nothing of. Men and brethren, be of good cheer. We are still on deck! You all know very well the blowing qualities of Smith folks and their agents. We will protect and defend all users of Case Purifiers.

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Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.

This paper has no connection with any manufacturing or mill furnishing business. Its editorial opinions cannot and will not be influenced by a bestowal or refusal of patronage. It has nothing for sale, but its space to advertisers and itself to subscribers.

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IS ANYTHING GAINED BY IT?

A FIRM prominently engaged in the mill-furnishing trade has sent us a letter, from one of its customers, and, requesting that we read it, closes its communication by the pithy query, "Are all men liars?" We have read the letter and take the liberty of reproducing it here, omitting, of course, all names. It will serve as a text for a few remarks. Here it is:

Gentlemen: Enclosed find check for balance due on _____. I have not tried the machine as I have had two or three times the amount of sawing I expected to have. I think I told you after I had bargained with you that _____, of _____, the mill-furnishing man from whom I got my feed mill, said if he had seen me before he thought that I would not have bought of you, but would have got a ____ of him. I was in ____ a few days ago, and went to his shop. He said he told me just what he thought at the time, and was still of the same opinion, that the American Mills of _____, had just tried a _____, and set it aside as worthless, and that the ____ Milling Co. had them, and thought they would not set them up, as it would be cheaper to pay for them and not set them up, than to start them and then have to take them out, and they wished him to sell them, but he would have nothing to do with them. How is that for the ____? Well, I had a little time, and although I trembled so I could hardly walk, after hearing this, being a victim also, I concluded to at least see how the ____ stood the weather outside the American Mill, and proceeded to find said mill, and did so without much trouble. I went into the office and asked the gentleman if they had a ____ about the premises. He said "Yes." Says I, "I suppose it is outside," to which he said, "No, it is at work above." I told him what ____ had said to me. He said ____ lied, that they were more than satisfied, they were pleased with it, as they would show me. Would give two ____ for another one. He hollered in a box for his foreman, and I did see the ____ doing good work. I got over trembling. On my way to the depot I took the ____ Milling Co.'s office in as it did me. The gentlemen there said they had no _____, and never had. I began to form an opinion of _____, and your Company seemed to individualise in my mind again; had been badly mixed up before, and I concluded to pay up.

Yours, _____.

For convenience, we will suppose the writer of this letter is John Doe, and the agent to whom he refers is Richard Roe. John Doe, after carefully considering the matter, had bought a machine which to him appeared to possess several features of advantage. Richard Roe had attempted

but failed, to convince Doe that his (Roe's) machine was just what he should have. What end was sought, or what object was attained by Roe in his misrepresentations to Doe, after he, Doe, had consummated his purchase?

Had Roe contented himself with saying that the machine Doe bought would not fulfill the claims of the maker, no particular harm would have resulted if, before Doe condemned it, he had set it up and tested it. If the test demonstrated its efficiency Roe could have expressed surprise, and if it was a failure he could have had the satisfaction of saying "I told you so." In neither event would his veracity or motives have been questioned. As it now stands Roe will never again have the chance to sell Doe a piece of machinery. Not only this, Doe having written the letter we produce, will not stop here; he will relate his experience to others, and while the story may travel slowly, it will leave its impression wherever it is told, and Roe will inevitably be regarded with a certain degree of distrust, his statements will be accepted as subject to qualification, and a fair talking competitor will have little trouble in getting the best of him.

Legitimate competition is beneficial alike to buyer and seller. When the anxiety to sell becomes so great that deliberate falsehood is resorted to, to influence the buyer, competition degenerates into fraud. The agent or manufacturer who effects the sale of a machine by willful falsehood concerning that of a competitor obtains money by false pretenses, and, so far as such transaction is concerned, must be counted a swindler.

It would appear that by this time every miller should have a fair idea of which mill-furnishing houses are responsible. Builders of mill machinery of acknowledged reputation cannot afford to place anything upon the market which will not under every conceivable condition fully meet their representations. If the miller has purchased any piece of machinery he has no right to condemn it without a fair and proper trial. He owes this to the manufacturer who alone takes the risk of its satisfactory operation and who alone will sustain the loss in case it does not so perform. The miller who has bought any piece of machinery on trial has no right, in fact he shows contemptible weakness, to listen to, and be influenced by, derogatory stories told by agents or by builders of rival machines, before he has subjected the machine he has bought to a fair and impartial test, and the agent or builder who would interfere with such a test should be kicked out of the mill. The miller, if purchases are made from responsible houses, runs no risk as to the proper and satisfactory operation of a machine. Give the manufacturer, therefore, an honest and fair showing, and you will more quickly be suited and in the end save considerable money.

THE *Millers' Gazette* publishes an interesting report of the convention of the British and Irish millers at Stockton. Favored by the most desirable weather, the three days' meetings formed a happy combination of profit and pleasure, and the members enjoyed the good things offered to their heart's content, and pronounced the convention a "great success." Besides a large number of valuable papers read, to which we may refer at a later time, a number of reports were presented, some of which deserve more than a passing mention. It was stated that the imports of flour into Great Britain had risen from 2,500,000 sacks in 1875, to 6,500,000 sacks in 1883, a clearer exposition of the milling industry than could be given by the most elaborate paper. The report on fire insurance shows that losses by fire in flour mills have increased from £42,000 in

1876, to an average of £155,000 in the past three years, and the proposition was made to start a mutual insurance association with a minimum of 500 members, or institute such a careful inspection of the mills with regard to means adapted for the prevention of fires, that insurance companies will be willing to take the decreasing risk of loss for a decreased rate of premium. The import question brought out a discussion for the necessity of technical education on the part of young millers, which, although the opportunities are provided by a miller's school, seems to be appreciated but little, as only seventeen candidates for graduation had presented themselves, of whom eight passed. As this, the first national convention, was so well patronized and enjoyed, a desire was expressed to repeat the experiment by calling another convention for next year, a wish which will undoubtedly receive due consideration by the officers elected for the current year.

Now that the political parties have decided who are to be their standard bearers in the coming campaign, the first excitement attending "presidential years" has time to cool down a trifle and the press of the country can devote their energies to something else for a little while. That reminds us how words, by common consent, sometimes acquire a new and different meaning from that for which they were coined originally. So "Republican" and "Democrat" have at the present time a very distinctly separated significance, and your staunch old Democrat will look upon it as an insult to be told that there is really no difference whatever between him and an equally orthodox Republican. To confound the two would perhaps be resented by both; but according to Webster, whose authority is unquestionable throughout the United States, the words have the same meaning. Democracy is defined by him as "a form of government in which the supreme power is in the hands of the people, and directly exercised by them; a constitutional and representative government; a republic." Republic again is "A State in which the sovereign power is exercised by representatives elected by the people." Many a hair-splitting discussion could be avoided, if we but take the pains to discover in what sense certain words are used and what meaning they were intended to convey; whether they were to be translated according to popular usage, or according to a dictionary. Of course, it would be better if anything written did not permit two different interpretations, but as the fact exists, we must conform to it as well as possible.

AN interesting summary of commercial failures in relation to speculation is given in *Bradstreet's*. A classified list of the failures in the United States during March and April stands as follows: The total number of bank failures during this time is 15, eight of which, or 53 per cent., were caused by speculations. Professional speculators failed to the number of 21; of traders with from \$20,000 to \$100,000 liabilities, the report states 53 failures, of which 6, or 11 per cent., were due to speculation; among 22 failures of traders with \$100,000 and upward liabilities, were 5 caused by speculation, or 23 per cent. "From this analysis," the report continues, "it appears that the highest ratio of mortality resulting from speculation has been felt by the banks; that heavy traders ranked next with a proportion one-half as great, and the smaller traders last, with the proportion of failures due to speculation again but one-half as heavy. From the totals given it is found that 36 per cent. of specified failures having \$20,000 or more liabilities were due to speculation." This is an interesting line of inquiry which *Bradstreet's* promises to follow, and that will

illustrate the relation between speculation and failures more forcibly than anything that has ever been published on the subject.

THE necessity for a reciprocity treaty with our next door neighbor, Canada, is recognized more and more, and although no immediate action can be taken, owing to the adjournment of Congress, it is apparent that the near future will bring a satisfactory settlement of the question. The House Committee on foreign affairs at their last meeting, we are told, reported resolutions which directed the President of the United States to open negotiations for the renewal of the Canadian reciprocity treaty of 1854, and acknowledged that a closer relation with the other States of the American Continent would be of mutual advantage. Nobody can doubt the wisdom of such recommendations. Although the home market, consuming the largest share of American produce, should primarily receive the closest attention, the markets for our surplus cannot be too many, and, above all, cannot be too near by. If we can find customers for our surplus products within 2,000 miles, it will relieve us of the necessity of finding markets 4,000 miles away.

BEFORE adjournment Congress appropriated \$7,500 for the payment of the expenses incidental to the scientific tests to be made at the forthcoming Electrical Exhibition at Philadelphia. As these tests include a determination of the efficiency of steam boilers they acquire a decidedly practical bearing to all steam consumers, and we ought to be thankful that the many sins of omission accredited to the last Congress, do not include this item for scientific tests. Although the amount asked for was larger, we believe \$15,000, the appropriation is sufficient to allow at least the more important tests to be made in such a manner as to place beyond doubt their correctness.

THE German millers propose to take preventive measures against a possible wholesale flooding of their country by American bran, if the proposed and much-spoken of bran compressing machine ever takes a tangible shape, prize or no prize. At their late meeting on June 24 a proposition to petition the government for a tariff of 50 Pf. per 100 kg. (about 5 cents per 100 pounds) on bran was warmly recommended as soon as the present commercial treaties expire, which will be in 1886.

THE fire insurance of the German millers in the "Magdeburg Insurance Company" exhibits a deficit of about \$10,000 for the year ending July 1, 1883. This will undoubtedly have the effect of stimulating the inventive genius of the people to devise some ways and means to check the increasing destructions by fire, or the insurance companies will have to increase the rate of their premiums. The tendency towards an increase of costly conflagrations seems to be international.

THERE can be no doubt that the danger of dust explosions in mills, at least so far as lighting is concerned, is entirely prevented by the employment of the electric light. The largest gunpowder factory of Germany has recently been lighted by incandescent lamps, and any light that is considered safe in a powder magazine, will certainly be safe in a flour mill.

THE "Mutual Marriage Aid Association" fiend has reached Buffalo. Of all "mutuals" this one is the most impractical, and fortunately it limits itself by its very impracticality. As "fools never die" this class of association will perhaps, here as well as elsewhere, lead a short existence "for the benefit of a few, and to the detriment of many."

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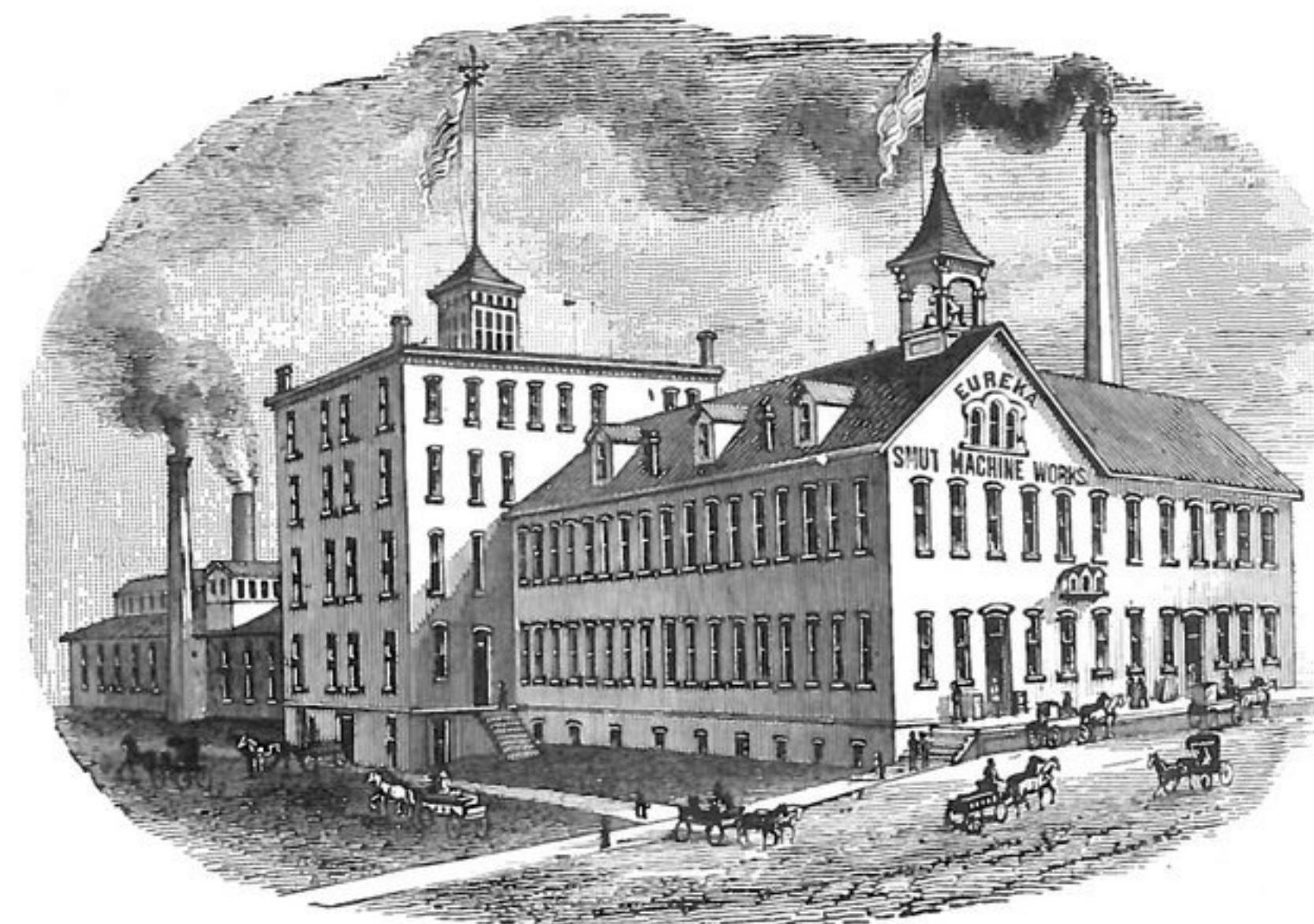
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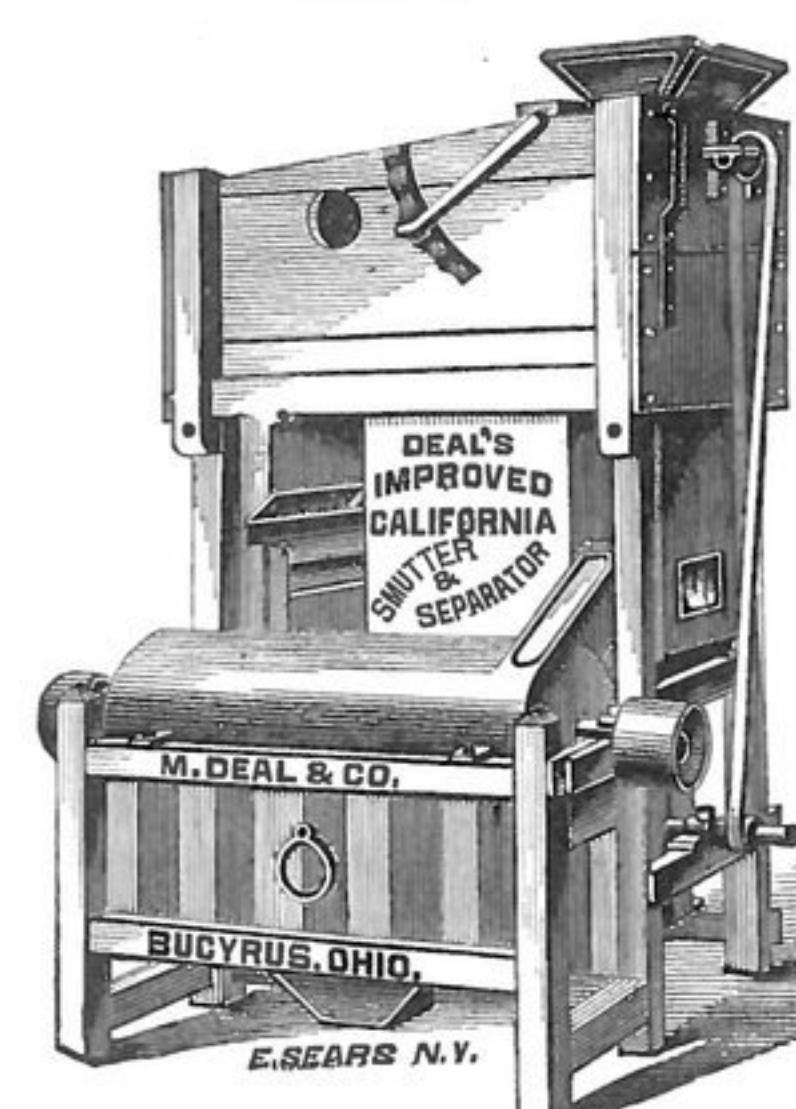
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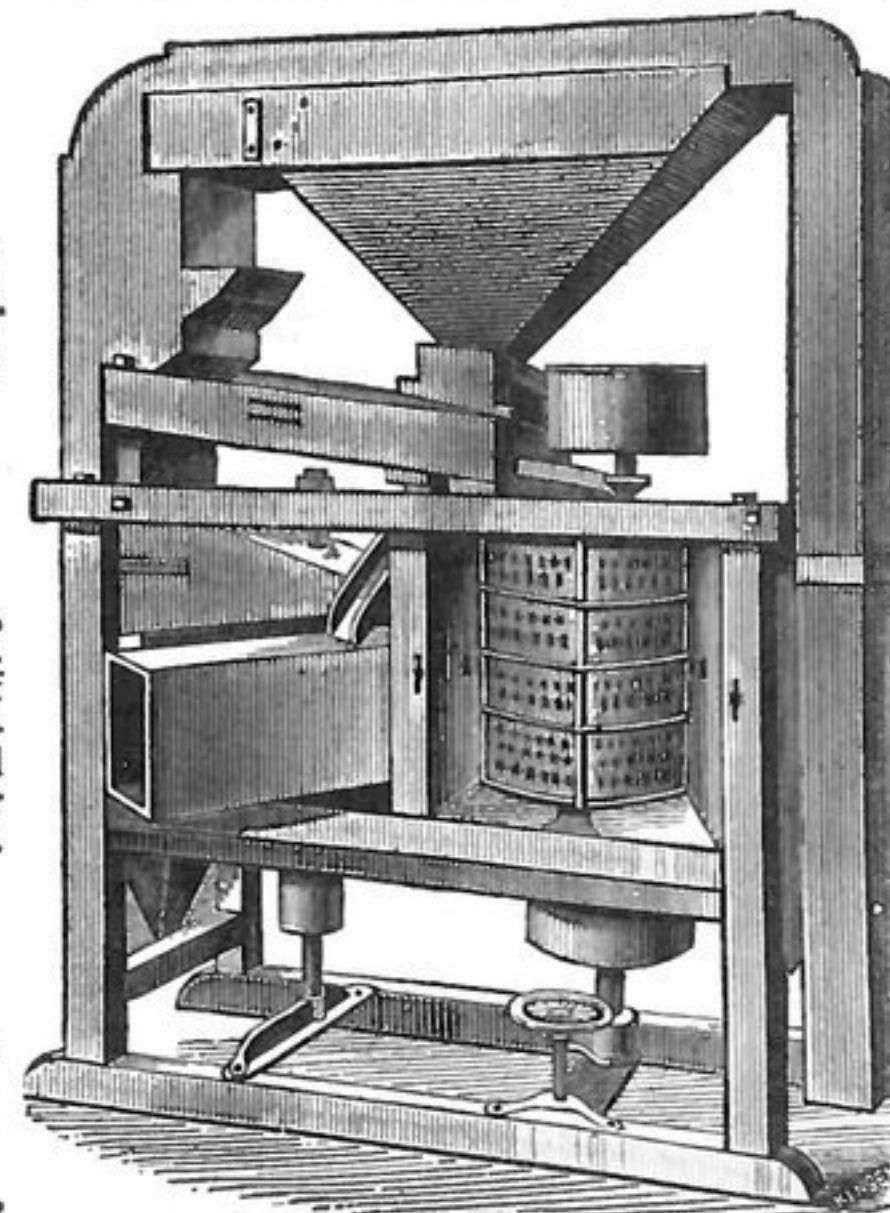
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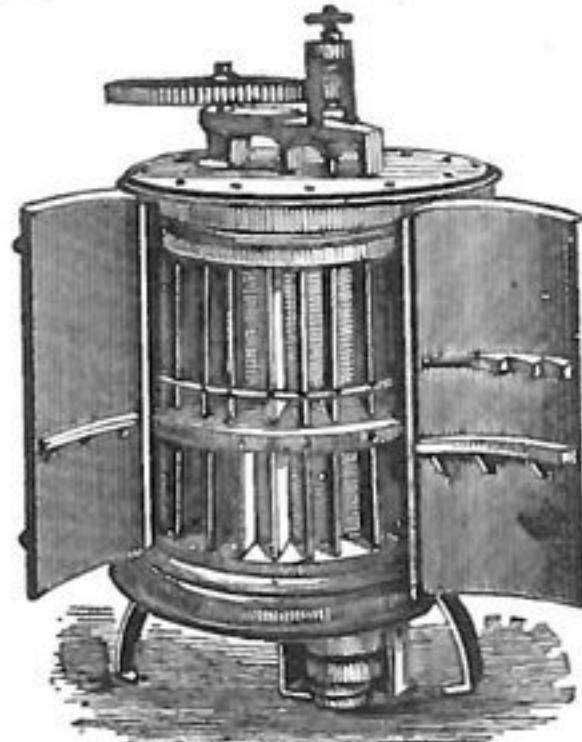
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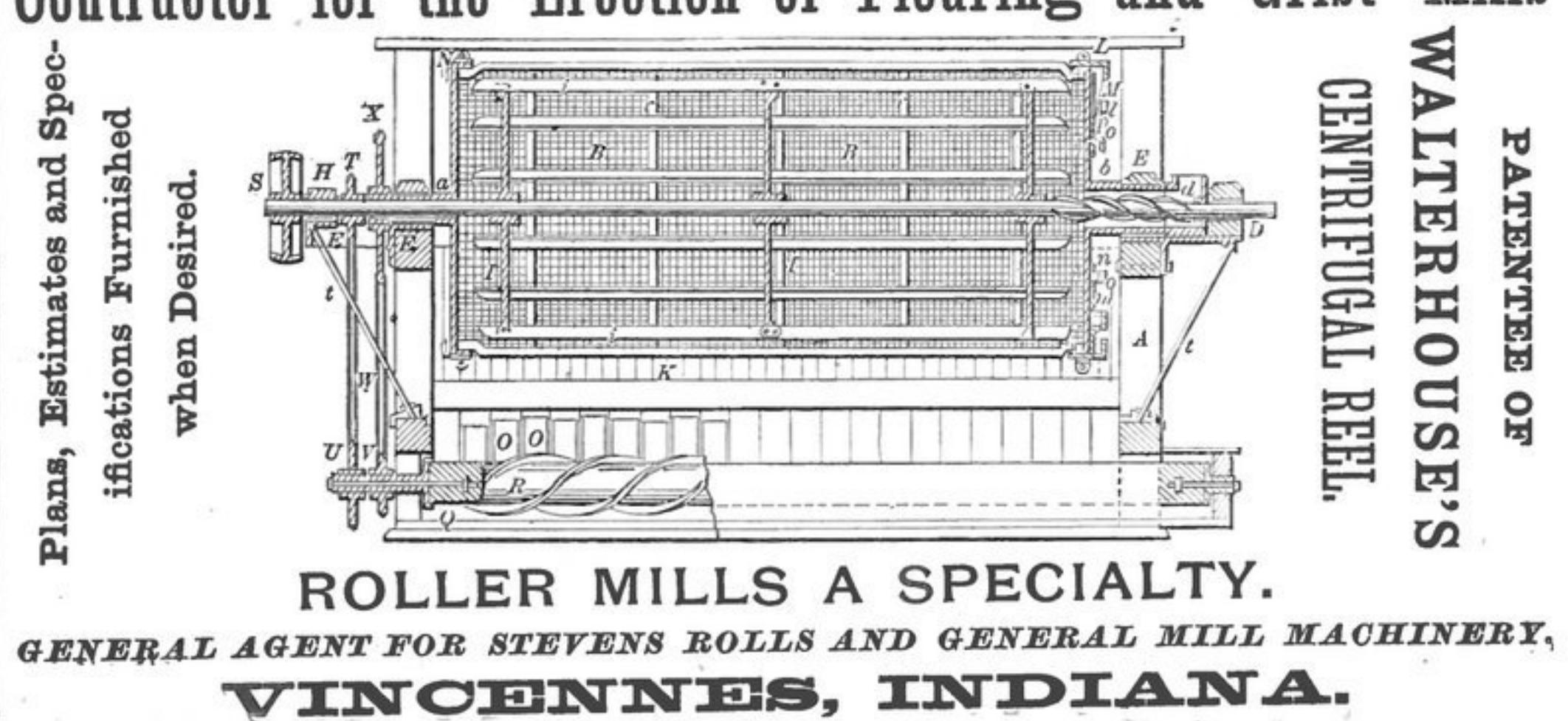
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FEED-REGULATOR FOR MILLS.

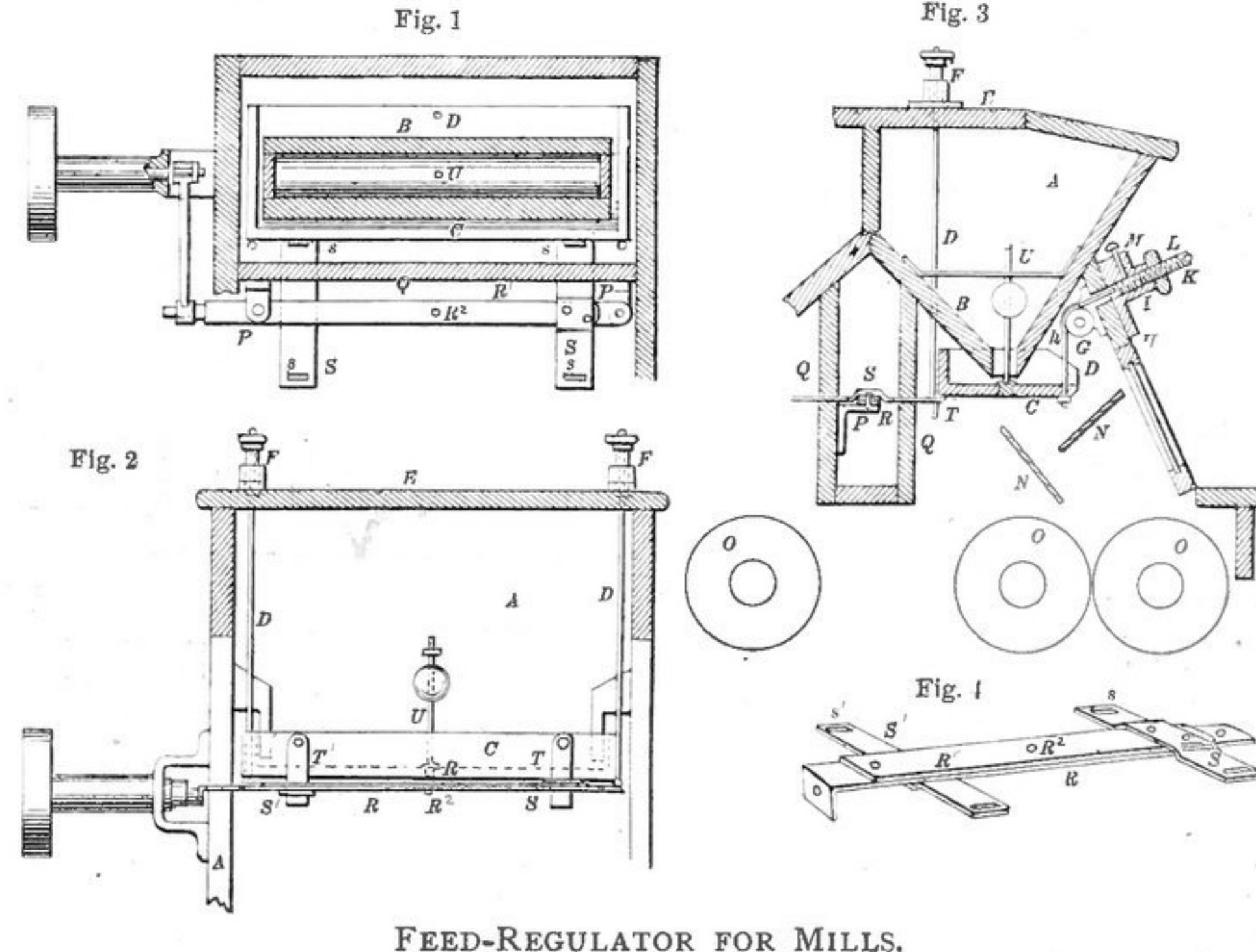
Letters Patent No. 301,107, dated July 1, 1884, to William R. Fox, of Grand Rapids, Mich. This invention relates to an improvement in feed-regulators for grinding-mills, the object being to so suspend the tray that it may be easily adjusted to any incline, and thereby regulate the feed of the grain to the rollers. Another object is to provide new and improved means for communicating to the tray a horizontal reciprocating motion, and, further, to provide a device of this character which shall be simple and economical in construction and at the same time durable and efficient in use. In the drawings, Figure 1 is a horizontal sectional view of improved feed-regulator, taken on line Z Z of Fig. 3. Fig. 2 is a vertical sectional view taken on the line X X of Fig. 3, a portion of the hopper and partition Q' being removed. Fig. 3 is a vertical cross-section, and Fig. 4 is a detached view showing improved devices through which motion is transmitted to the tray. A represents the sides of the regulator, to which are secured the sides of the hopper B, through the lower portion of which the grain is fed onto the tray or spout C. The said tray is supported by three or more rods, D, or their equivalent, situated as shown, the upper ends of two of which pass through the top E, secured to the sides A, the upper ends of said rods being provided with nuts or thumb-screws F, adapted to bear on the top, and by means of which the rear end of the tray may be vertically adjusted. The rod or wire D, supporting the front end of the spout, is passed over a roller or pulley, G, secured to a spindle, K, mounted in frame-brackets secured to the inclined face H of the regulator, the said rod or wire passing through the face and lug I, and having the enlarged end K, provided with a screw-thread, L. A nut, x, fits on the enlarged end K and against the lug I, which nut, when turned, is adapted to raise or lower the front end of the tray. The lug I is also provided with a perforation in which fits a pin, M, against the lower end of which fits the inner shoulder, m, of the enlarged end of the said rod or wire D, and holds the front end of the tray in an elevated adjustment and checks the feed of the grain. The nut x is only used to secure the desired adjustment of the tray. When it is desired to entirely shut off the feed, it is only necessary to draw up the wire at the front of the tray until the enlarged end of K passes the pin m, when the latter will drop back of the end K, and thus hold the tray closely against the bottom of the hopper. When it is desired to start the feed again, it is only necessary to withdraw the pin m, and the tray will return to its former position or adjustment without any manipulation of the nut x. Below the tray, and to the sides of the regulator, are secured inclines N, upon which falls the grain from the tray, said inclines being situated one below the other, and at angles with each other. Immediately below the said inclines are situated the rollers O, between which the grain falls after leaving the lowest incline. P P' represent two supports or bearings secured to one of the vertical partitions, Q Q', separating two adjacent regulators, to which bearing P is loosely secured the end of a rod, R, the other end of which is left free and projects through the side A. To the bearing P' is secured the end of the rod R', which is also pivotally secured to the rod R at the point R², the other end of said rod R' being secured to a plate, S, provided

near both ends with openings s, through which pass the springs T, the upper ends of which are secured to the tray C. To the rod R at a point equally distant from the pivot R² is secured the plate S', which is also provided at both ends with openings s', through which pass the lower ends of the springs T', similar to the springs T, and which are also secured to the rear ends of the tray. These springs serve as connections, and also as hinges, when the front ends of the tray or trays are raised or lowered. By means of these openings in the plates S S' the tray can be vertically adjusted without affecting the connection

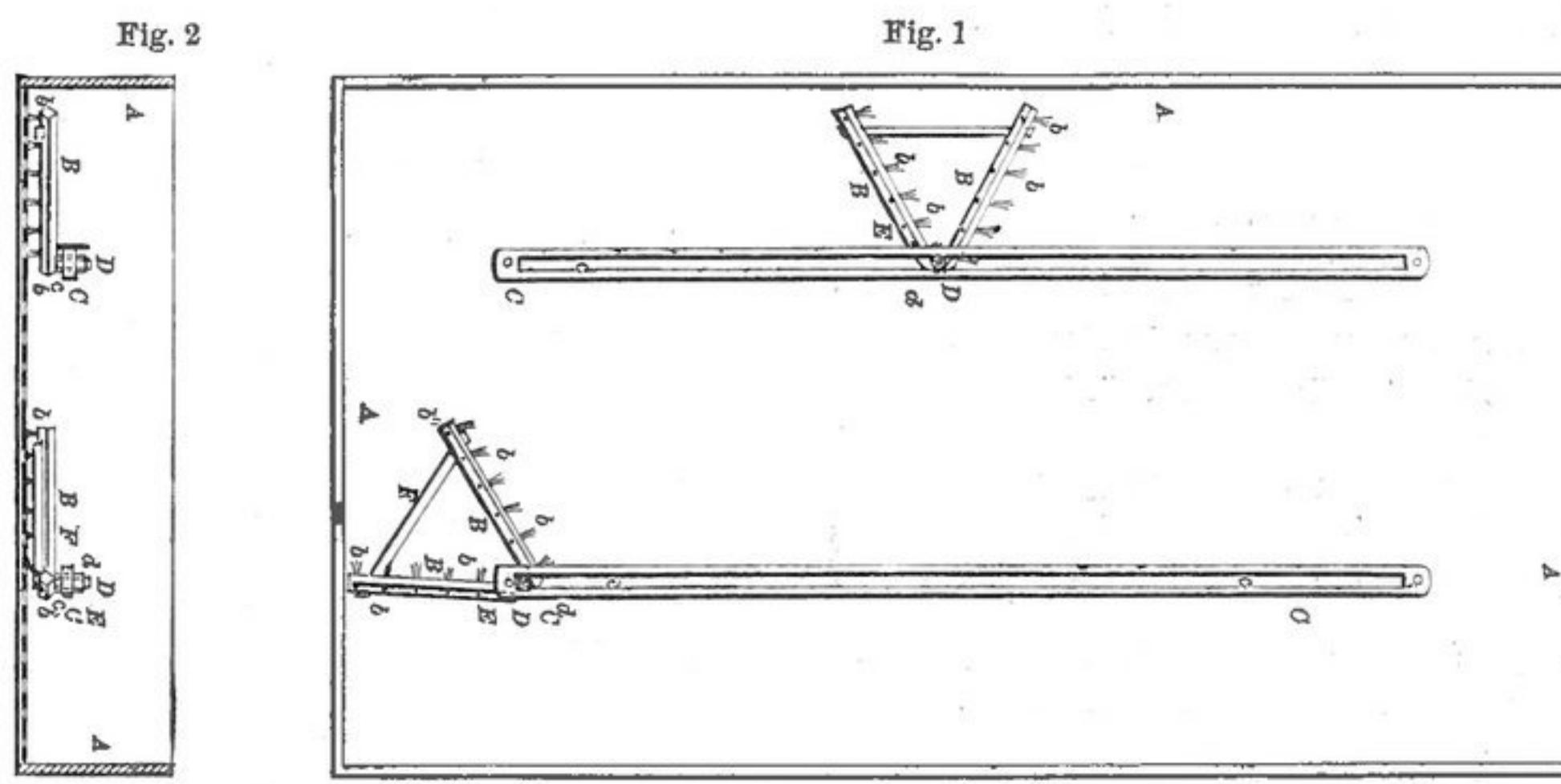
motion imparted to the tray throws the grain off the latter in nearly a regular stream, the feed of the grain to the rollers being made regular by falling upon and passing over the inclines, and is regulated by raising or lowering the front end of the tray. The improvement is primarily designed to be used in connection with a double-roller mill; but it may be used for feeding a single pair of rolls.

BRUSHING APPARATUS FOR SIEVES.

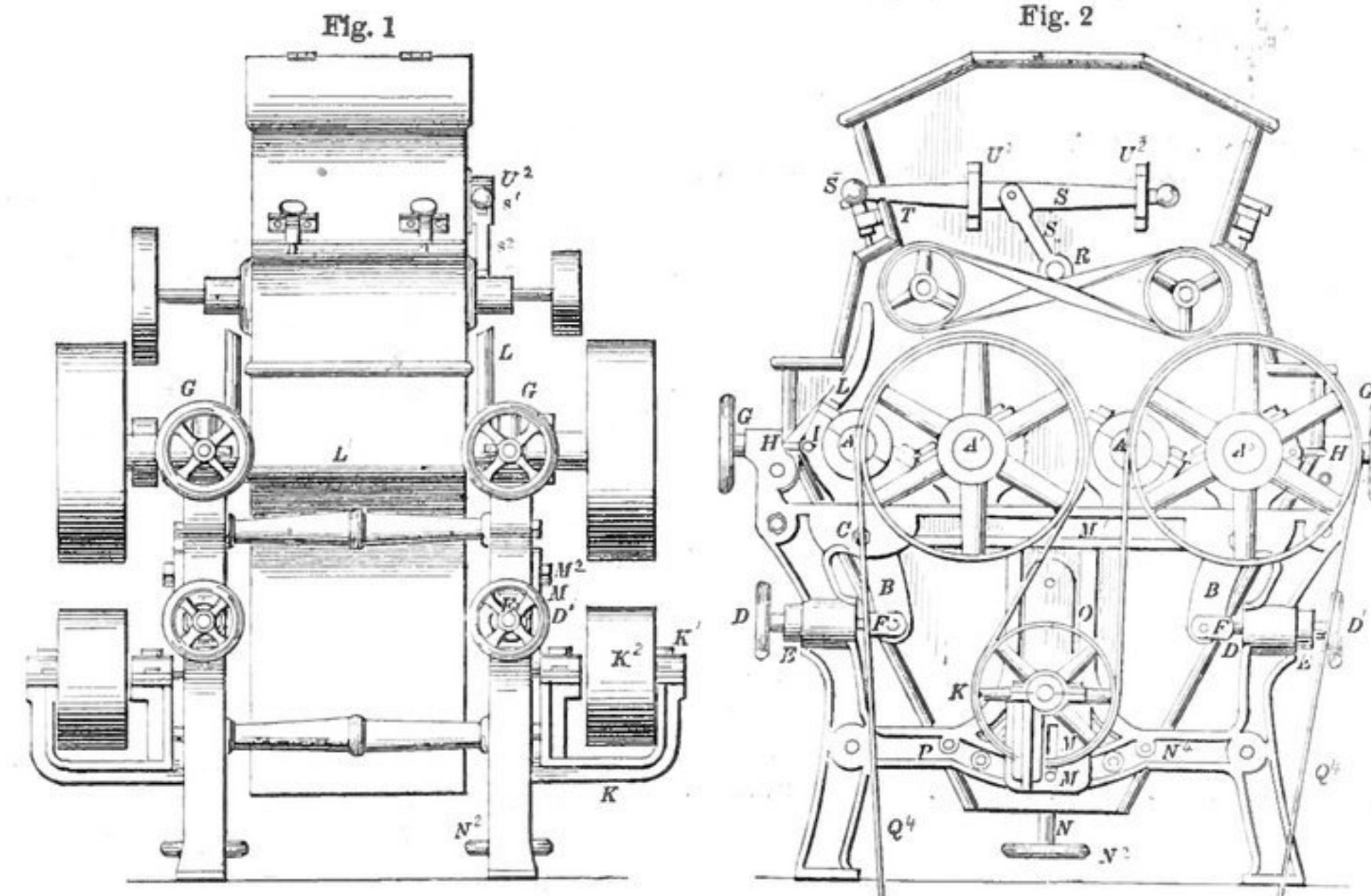
Letters Patent No. 301,154, dated July 1, 1884, to Frederick Andrew Price, of Barnawarra, Victoria, Australia. Sieves used for



FEED-REGULATOR FOR MILLS.



BRUSHING APPARATUS FOR SIEVES.



ROLLER-MILL.

Letters Patent No. 301,240, dated July 1, 1884, to Alexander Ingraham, of Minneapolis, Minn. This invention relates to that class of mills in which horizontal grinding-rollers arranged in pairs are employed; and it consists in certain improvements in the construction and arrangement of parts in said mills whereby they are rendered more accurate and certain in their operation, convenient in their adjustments, and more satisfactory results are obtained. Figure 1 is a side elevation, and Fig. 2 an end elevation, of a machine embodying the invention. A A' A² A³ are rollers by which wheat and other substances are ground. A' and A² are rollers in stationary bearings, and A and A³ are rollers mounted on movable bear-

suitable supports, and agitated by crank or otherwise; but as such do not form part of the invention, and are readily understood by all engineers versed in this class of machinery, they are omitted from the drawings for the sake of clearness. B are the traveling brushes. The brushes B have their bristles b inclined in a direction contrary to that in which they travel, as plainly shown in Fig. 1. The shaking or vibratory motion of the sieve causes the brushes to travel along it. As the sieve moves in the direction meeting the points of the bristles of the brush the friction between the brush and the sieve-surface carries the brush forward; but when moving in the opposite direction the friction is not sufficient to carry the brush back. The sieve thus during its forward motion grips the bristles b through their being inclined to meet it, but during the return motion the sieve slides past the inclined bristles, the inclination being such that the surface of the sieve does not catch them. The sieve, as heretofore stated, may be supported or suspended in any suitable manner to receive a reciprocating motion. The brushes are carried in a fixed guide or frame, C, suspended by rods or otherwise from above, preferably from the same support or beam from which the sieve is hung. This guide or frame C is placed at any convenient height above the sieve-surface, but preferably just sufficiently high to allow the brush passing freely for the purposes of turning. Attached to the brush is a small pin, D, which works in the slot c of the frame C, and moves to and fro therein as the brushes are carried along. The pin D is preferably provided with a friction-roller, d. The roller d travels in the groove or slot c from end to end to guide the brushes, and at the ends forms a pivot for the brushes to turn upon. A second pin, E, is placed in the framework of the brush, and travels against the outside of the frame C. The pin E keeps the brush in a straight course; otherwise it would be inclined to move in a circle, instead of lengthwise of the sieve. If the invention were applied to circular sieves, the brush would keep going round on the pivot in a fixed center, and without a guide-frame. Two brushes are shown in the drawings, but one only or a greater number may be used; but two rather than one, is preferred, as less space is then left in the corner of the sieve unbrushed. When traveling the length of the sieve, both sets of brushes b come into play to propel the brush along; but when turning, the set of bristles attached to the arm of the brush b' are inoperative when the brush is in position shown at F, the bristles on the other arm, b'', serving to carry the brush on until those at b' are acted upon on the return journey. These, then, carry the brush on until both are again acted upon. It is not necessary that the brush should work on the top of the sieve, as it may equally well be worked against the bottom of the sieve, with the addition of a hook on which the brush would rest and be kept up against the sieve. The brush will work in any position, provided it is kept against the cloth.

ROLLER-MILL.

Letters Patent No. 301,240, dated July 1, 1884, to Alexander Ingraham, of Minneapolis, Minn. This invention relates to that class of mills in which horizontal grinding-rollers arranged in pairs are employed; and it consists in certain improvements in the construction and arrangement of parts in said mills whereby they are rendered more accurate and certain in their operation, convenient in their adjustments, and more satisfactory results are obtained. Figure 1 is a side elevation, and Fig. 2 an end elevation, of a machine embodying the invention. A A' A² A³ are rollers by which wheat and other substances are ground. A' and A² are rollers in stationary bearings, and A and A³ are rollers mounted on movable bear-

ings, whereby they are adjusted to their fellow rollers. B is an arm with bearing therein, this arm being mounted on the pivot C. C is an eccentric whereby arm B is moved upward or downward to adjust roller A parallel to roller A', the roller A² being adjusted to and from roller A² in the same manner. D is a rod having a screw-thread at the outer end, and is connected to arm B by pivot F. Rod D has a hand-wheel, D', and is encircled by spiral spring, E, with a follower, E'. E² is a cavity in the frame of the machine, containing spring E. H is a rod having a screw thread at the outer end, and fastened to the upper portion of arm B by means of the pivot I. G is a hand-wheel working on, and j, is an arm projecting downward from rod H. H' is a cavity in the frame of the machine, in which plays the projecting arm j. L is a lever fastened to through-shaft L' by means of a set-screw. L² is a screw-bolt screwed into through-shaft L' this bolt having a projecting head. By screwing up the hand-wheel D a pressure is brought to bear on the follower E', which compresses the spiral spring E, and thereby draws the lower end of the arm B toward the outer portion of the frame-work of the machine, thus throwing the movable roller A toward stationary roller A. By means of the hand-wheel G operating on the rod H the movable roller A may be adjusted to the stationary roller A', so as to grind coarse or fine, as may be desired. By screwing up the hand-wheel G the roller A will be drawn back from roller A', and by loosening the hand-wheel the roller A (owing to the pressure exerted by spring E) will immediately approach the stationary roller A'. By means of the spring E all slack consequent upon the wearing of the pivots, F, C, and I is obviated, and the roller A is kept as near roller A' as will be permitted by the restraining-rod H. Upon throwing the lever L outward, the projecting head of the screw-bolt L² presses against the arm j, and thereby throws the rod H outward, carrying with it the adjustable roller A. In case the machine should become clogged, the feed-gate can be shut off, the lever L thrown outward, and all matter clogging the rollers would thus be permitted to pass through. Upon throwing the lever in again and opening the feed-gate the mill would at once be in operation, grinding the grain to the same degree of fineness as before, and without any new adjustment. K is an iron frame supporting the bearings K' K', in which run the shafts of the tightening-pulleys K². M is a plate of iron or other substance bolted to the block M' (M' being composed of iron or other substance) by means of the screw-bolt M², on which bolt plate M swings as on a pivot. M³ is a slot in plate M. M⁴ is a screw-bolt passing through slot M³, and securing plate M to the frame of the machine N⁴. Frame K is securely bolted to plate M. N is a rod passing through the frame of the machine at N⁴, and bearing against another portion of the frame at N'. N² is a hand-wheel for operating rod N, and N³ is a collar fastened to rod N immediately above the frame, at N⁴, by means of a set-screw. Rod N has a screw-thread on the upper portion, by means of which thread the block M' is moved up or down. O O are portions of the frame, having rectangular ribs on the inner sides, the block M' having slots in either side, into which the ribs on O O fit. P' P² P³ are holes in frame N⁴ similar to and for the same purpose as the hole into which bolt M⁴ fits. When it is desired to tighten the belting Q⁴, the rod N is turned by means of hand-wheel N² from left to right, thus forcing block M' downward, carrying with it the plate M, (slot M³ playing on bolt M⁴), and consequently lowering frame K and tightening-pulley K², thereby taking up any slack there may be in the

belt. Should it be desired to move the tightening-pulley, K² to left or to right, to adjust the machine to the position of the driving-shaft, it may be accomplished by removing bolt M⁴, swinging plate M on pivot M² until slot M³ is opposite hole P', P², or P³, as the case may be, and bolting the plate M to the frame N⁴ at any one of the points by placing bolt M⁴ through the slot M³ and into hole P' P², or P³, as may be desired. R is a through-shaft. R³ are collars around shaft R, and fastened thereto by set-screws. R' and R² are gates having arms Q Q and Q' Q', fastened to collar R³ by means of pivots R⁴. S is a bar or arm sliding in guides U' and U², and having heavy knobs or balls S' and S² at either end, S' being heavier than S². S² is a lever fastened by set-screw to through-shaft R and to the center of arm S by a pivot. T' and T² are notches in arm S, with corresponding catch in guide U². U U are feed-rollers moving in the direction indicated by arrows. By grasping ball S' and pulling it outward the feed-gates R' and R² will both be thrown outward, the extra weight of S' over S² causing notch T² to fall over the corresponding catch in guide U², thus preventing the gates from being moved out of this position by the jarring of the machinery or otherwise. Again, by grasping ball S' and pushing it inward the feed-gates R' and R² will be thrown inward, the notch T' will fall on the catch in guide U², and the gates will be held in position as indicated above, and the grain will fall from the feed-hoppers U³ and U⁴ onto the feed-rollers U U. In case the grinding-rollers A A' A² A³ become clogged, or in any way fail to perform their work, the feed may be instantly shut off from both sets of grinding-rollers with but one motion of the hand. It will be readily understood from the drawings that the two ends of the machine are counterparts each of the other. The general construction of the mill is by duplication of parts.

WILHELM & BONNER,
Solicitors of Patents,
*Attorneys and Counselors in
Patent Causes.*

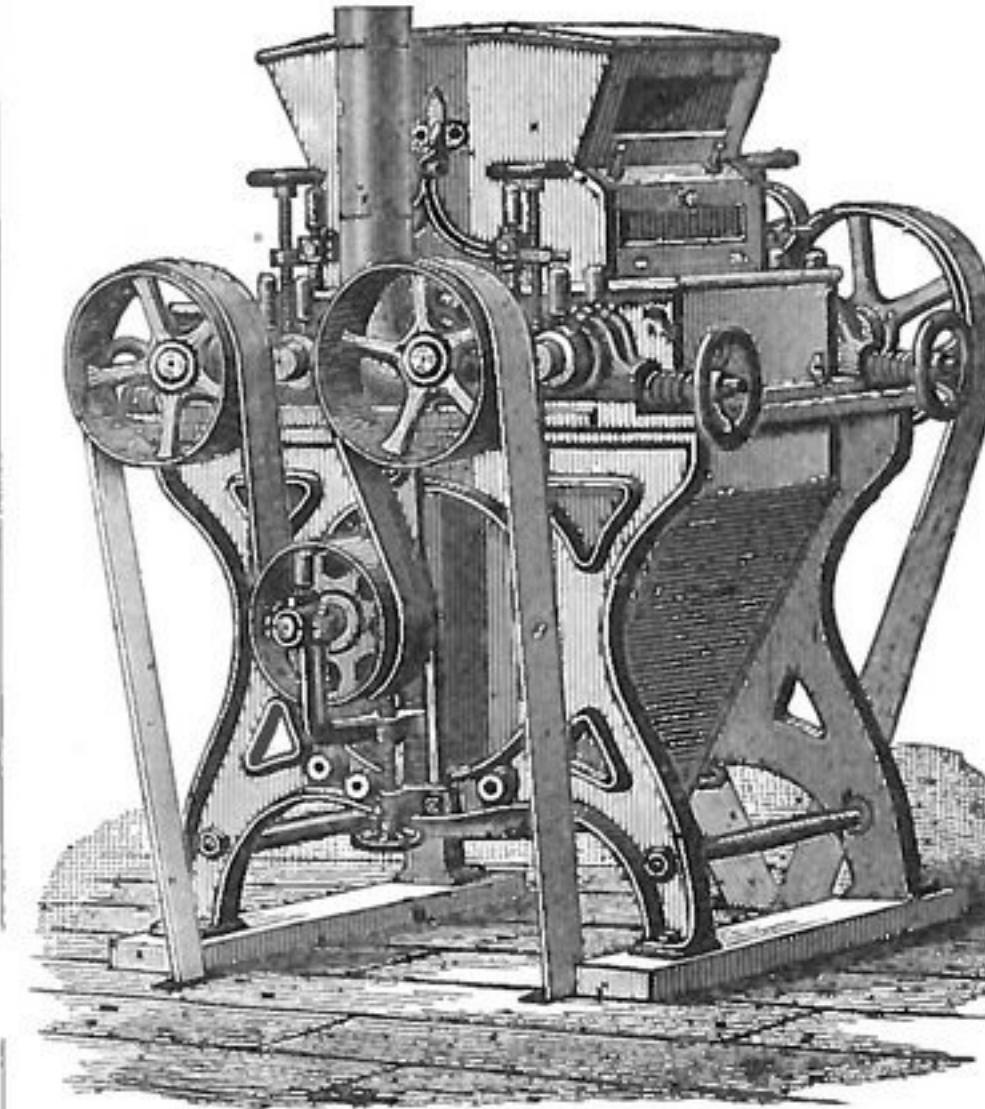
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THE ORIGINAL SIX-INCH ROLLER MILL.

THE BEST ROLL IN THE MARKET

RICKERSON'S

PATENT IMPROVED ROLLER MILL.



Our six by twenty rolls weigh 175 pounds each making 700 pounds to drive in a double set roller mill, as against 1800 pounds in the old style mill; this fact enables us to run with greater speed, with no danger of hot journals, hence our greater capacity. Produces better results, because there is less Pulverizing and Better GRANULATION, the point of contact being much less on a SIX-INCH ROLL than the old system; the STOCK BEING KEPT LARGER and more middlings produced on each reduction. It is a well established fact that the object in gradual reduction milling is to make as large a percentage of middlings as possible, and we claim to make MORE MIDDLENDGS from a bushel of wheat THAN ANY OTHER ROLLER MILL, and we are prepared to prove our claim. The MORE MIDDLENDGS the greater percentage of PATENT FLOUR, and better COLOR of ALL grades. We build the only Roller Mill with PATENT EXHAUST ATTACHMENT for taking away all GENERATED HEAT, thus doing away with the GREATEST ANNOYANCE that millers have experienced in running the gradual reduction system, at the same time keeping the stock cooler as it passes to the Reels and Purifiers, consequently the separations are made more easily. We use nothing but the Ansonia Chilled Iron Roll, with steel journals, ground, and run them entirely with LONG belts. With a feed device for throwing out and in easily, with a leveling device that is positive and perfect, and an adjustment so entirely positive, that feed can be stopped or cut-off, and put on again without readjusting rollers. **WE DO NOT DEPEND UPON THE STOCK TO KEEP OUR ROLLS APART.** We are prepared to furnish plans for our Gradual Reduction system on short notice, and fill orders for our Mills promptly. **We make both Corrugated and Smooth Rolls. Twelve, Fifteen, Eighteen and Twenty Inches Long and Six Inches in Diameter. Prices Sent on Application.** Correspondence solicited. Address,

O. E. BROWN MANUF. CO.

GRAND RAPIDS, MICHIGAN.

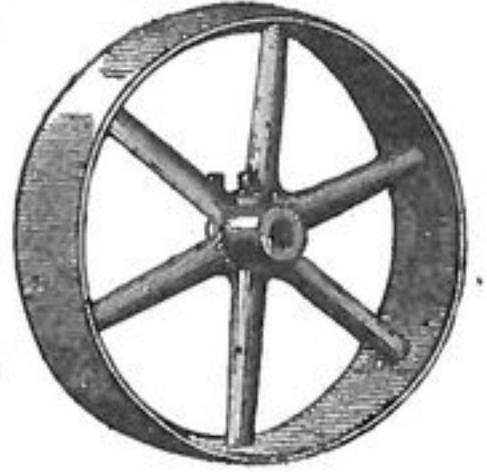
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PRICE, \$15.00.

Send For Circular.
SHAFTING, PULLEYS & HANGERS.

Pulleys a Specialty, Large or Small. Address,

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FOR CIRCULARS AND PRICE LISTS ADDRESS
The GEO. T. SMITH MIDDLING PURIFIER CO.,
JACKSON, MICHIGAN, U. S. A.



THE COST OF STEAM AND WATER POWER.

DURING the discussion of a paper on "The Cost of Steam Power," at the meeting of the American Society of Civil Engineers, at Buffalo, reported in the *American Engineer*, Mr. Clemens Herschel said: Water power has, undoubtedly, a variety of values, according to the situation in which it is found. But there are many situations in which steam power cannot, in any close sense, be considered a competitor. Some branches of manufacture in this country have depended, at first, for their very existence, and again, for the attainment of their present development, upon the cheapness of water power. One such is the manufacture of paper. It could not have reached its present development in the United States, by the use of steam power alone. It is yet a rare, if not an unknown thing in the Eastern states, to find a paper mill propelled by steam only, and were all the paper mills in the United States to-day compelled to use steam only, the manufacture of fine writing paper in the United States would be almost annihilated; whereas such paper is now exported, and shrewd paper manufacturers do not much care whether the duty on imports of paper, (and of paper stock and chemicals), stays or goes. Nor is it, in the opinion of the writer, yet possible for a paper mill propelled by steam alone, to compete with those who get their power at a less cost. The same thing is probably true of any branch of manufacturing that runs its machinery, or a material portion of its machinery, day and night.

To pass to an illustration of market values, we may take the following statement, which appeared in the February number of the *Manufacturer and Industrial Gazette*, (suppressing only the names):

"The offers for sale, on advantageous terms, mill-sites and surplus water power. These mill-sites, and the water power thereto appurtenant, will be sold at a rate which will cause the average cost of the power used throughout the year, (steam power being used when need be), to reach, eventually, from less than one-half, up to less than three-fourths of the cost of steam power alone, depending on the total amount of power used on each mill-site. At the present day, and for many years to come, the cost of such power will be less than the cost above given."

Though an advertisement in the original, it is, when taken by itself, as concise a statement of the relative costs of steam and water power, (under unfavorable conditions for the latter), as could well be made. It does not, however, tell the whole story, for in the sales of water power, land enough for the mill site is usually given with the power; whereas in sales of a mill-site, on which a mill is to be built to be operated by steam, the land naturally assumes a material value.

The above comparison of values of steam and water power is based on cost of plant needed for each kind of power, up to the main shaft, and the computations were made by the writer himself.

BOILER CLEANING.

Crude petroleum is very effective in removing hard scale, says the *Locomotive*. But it should be put into the boiler when it is comparatively cool, after blowing down and cleaning out the boiler. The crude petroleum may be put in when the boiler is being filled; it will rise to the surface of the water, and as the water rises in the process of filling the sides of the boiler will be bathed by the rising oil on the surface. We

have been able to remove hard scale in this way which could not be removed by any other process. Crude petroleum is volatile, and the amount of residuum which would result from the quantity used in a boiler for such purposes would be so small as to be harmless. We would not, however, advise the indiscriminate use of crude petroleum. If the water carries vegetable matter, or is liable to be muddy, other purgers will be better. But for a hard-lime scale we have found crude petroleum very effective. It will be observed that the conditions under which the oil is used in this case are different from those where it is introduced in the exhaust from the engine. In the latter case it is introduced into the water, which is at a high temperature, and may have more or less impurity or scum on the surface; the oil readily combines with this, sometimes causing serious difficulties. While in the former case the oil is introduced cold into cold water, it washes, or "varnishes" the sides of the scale-covered boiler, penetrates it, works its way between the scale and the iron of the boiler, and detaches it. Those who have used petroleum to aid in removing a nut from a rusted bolt will understand its operation. It eats out or dissolves the rust or oxide without injuring the iron. So with hard scale, it works down between the iron and the scale, eats out or lubricates the film of oxide, and detaches it.

* * One of the most remarkable achievements of the time is the subscription of \$25,000,000 by the people of Manchester, in one day, to build a ship canal to Liverpool, making their great city accessible to ocean steamships. The bill for the project passed its second reading in the House of Commons not long ago, and there can be no doubt that the enterprise will be successful. For more than half a century it has been the subject of discussion, but the sagacious business men of Manchester have now undertaken the work with an earnestness which banishes all skepticism as to the result. What a reproach for New York is there in the enterprise of Manchester to make herself a seaport. With a stupidity which ought to bring a blush of shame to every citizen, says a New York paper, we are permitting our channel to the ocean to be ruined, while the people of Manchester have raised \$25,000,000 in one day to construct a canal for ships from the Mersey to their city. The world will soon cease to talk of the enterprise of Americans if such stupidity continues in New York.

* * The results of special investigation of tornadoes in 1882 and 1883, have led the United States signal office to adopt a plan for thoroughly studying tornado phenomena. The work is now carried on by about 800 observers, called tornado reporters, whose stations are mostly located in the States of Alabama, Georgia, South Carolina, North Carolina, Missouri, Arkansas, Kansas, Illinois, Indiana, Iowa, Nebraska, Wisconsin and Minnesota. Since March 10, 1884, according to Sergeant J. P. Finley, tornado predictions have been made a matter of daily study. The average up to June 1 shows that it has been possible on fifty-five days to successfully predict from the morning weather map that no tornado would occur on that day; on twenty-eight other days tornadoes were predicted for particular States or larger regions, and of these the tornadoes on seventeen days occurred in or near the specified region, while on eleven days tornadoes occurred in regions for which they were not predicted.

* * A good many small fires have taken place in Toronto recently, in which, according to the *Monetary Times*, the loss by water was much greater than the loss by fire. In some cases of this kind the firemen are apt to use water too freely. Each station, we understand, is furnished with a

number of small chemical engines, which the men are supposed to take with them to every fire. The chief, before ordering a stream to be turned on a burning building, should first feel convinced that the fire cannot be extinguished by one or more of the small chemical engines. A fire in an upper story of a building, when confined to one or two rooms, can, in most cases, be effectually subdued by these chemical engines, and that, too, without any damage whatever to the lower part of the building or its contents. In Buffalo, Detroit, and other American cities, a large percentage of the fires are extinguished by means of the chemical engines.

* * Of the nearly 300,000 patents which have been issued by the government, as shown by a table prepared by Commissioner Butterworth, 10,203 have been for metal working machines, 8,238 for stoves and furnaces, 5,505 for railway cars, 6,740 for mills and thrashing, 6,606 for harvesters, 6,686 for plows, 5,872 for applications of electricity, 5,060 for boots and shoes, 5,111 for steam engines, 5,254 for lamps and gas fixtures, 4,993 for laundry, 3,568 for seeders and planters, 3,504 railways, 2,417 for wearing apparel, 2,429 for dairy utensils, 2,888 for fences, 3,814 for metalizing, 2,453 for beds, 3,156 for pumps, 3,719 for water distributors, corset patterns have been 969 times patented, 754 machines for knitting, 734 nut and bolt locks, 1,219 methods of tanning hides, 884 fire escapes, 500 artesian wells, 440 bread and cracker machines, 1,580 chairs, 450 vegetable cutters, 567 fire engines, and so on through a long list.

* * The New York *Commercial Advertiser* says: The timber interests of the world are reported to be in a bad way, the demand for lumber everywhere being in excess of the supply. The forests of Sweden and Norway have been drawn upon to excess; those of Northern Russia fail to meet the demands even of St. Petersburg; the 30,000,000 acres of woodland in Germany produce lumber of a poor quality; the timber lands of Bohemia, Galicia and Transylvania are not easily accessible; the shores of the Adriatic are bare; Great Britain has no merchantable lumber worth mentioning, and the forests of Central Africa are too remote to give a supply. The aggregate woodland of Europe is estimated at 500,000,000 acres, or about 20 per cent. of the area of the continent. Under the circumstances, it would be the proper thing for the people of the United States to husband their timber lands to the last degree.

* * A correspondent of *Cotton, Wool and Iron* tells how to cover a pulley with leather, thus: Select a good even piece of new belting, moisten it clear through—not soak it. Drill a half dozen holes the size of belt rivets around each end of the pulley. Prepare a cement of two parts of glue and one part of white pine turpentine dissolved in vinegar; fasten one end to the pulley, and to the other end apply some kind of a clamp, say a hand screw; let an assistant take hold of that; while one or two others are turning the pulley, another is applying the cement to the leather. Butt the ends nicely, and rivet. When dry, go ahead; the leather will stay there until it is worn off.

* * It has been stated that posts inserted into the soil in the position in which they grew were not as durable as those inserted in an inverted position, but recent experiments demonstrate the theory to be

false. In addition to the well known series of experiments by Prof. Beal, of Lansing, Mich., showing that there is no difference in the durability of posts when set inverted, Dr. Heximer states in Bliss' Garden, that 15 years ago, when building a grape trellis, he set the posts top down in one row, and all the others in the usual manner. When decay commenced, no difference could be seen in their durability, and all had to be replaced at about the same time.

* * Reports to the Paris Academy of Sciences on the lightning strokes in France during 1883, show that such accidents were largely confined to the months of June and July, the number reported for July being 143, resulting in thirteen deaths. Most of the persons struck occupied positions near a tree, a chimney, or a house on an elevated site with trees around it; but there were cases of death in an open field and on a roadway. Several accidents from lightning happened from persons carrying umbrellas.

* * To ascertain whether a sample of petroleum is sufficiently volatile to be dangerous, Herr Montag points out a very simple and conclusive method. He fills a glass three parts full with the petroleum to be tested, and fills up the glass with boiling water, at the same time holding a flame over it. If the vapor disengaged becomes ignited, the petroleum should not be considered a safe liquid to leave exposed to the atmosphere.

* * Automatic sprinklers are demonstrating their great value every few days, notwithstanding the cold reception they are receiving at the hands of underwriters. In the large printing establishment of Rand, Avery & Co., in Boston, a few days ago, an overheated journal started a fire, which released a sprinkler head, made an alarm, and put out the fire before the aroused watchman got on the ground.

* * A Chicago minister in search of a sensation has been having Chicago liquor analyzed we are told. He found concentrated lye and arsenic in rye whiskey, turpentine and blue vitriol in gin, chromic acid, fusel oil and arsenic in "forty-year-old Kentucky Bourbon," spirits of cognac, ether, sulphur and arsenic in brandy.

* * It is estimated that the proposed dam across the Mississippi river at Brainerd, Minn., will be three hundred and sixty feet long and that the river will be raised twenty, feet, making available an 8,794-horse-power force. The cost of the work complete will probably be \$250,000.

DWIGHT CUSHMAN,

MANUFACTURER OF
The Cushman Scroll Water Wheel, Combination Turbine Water Wheel, Iron Flumes for the Combination Wheel.

The Scroll Wheel Needs
No Flume.
Also Mill Gearing and Shafting of every description.
Prices low. Send for Circular and Prices before buying any other Wheel.

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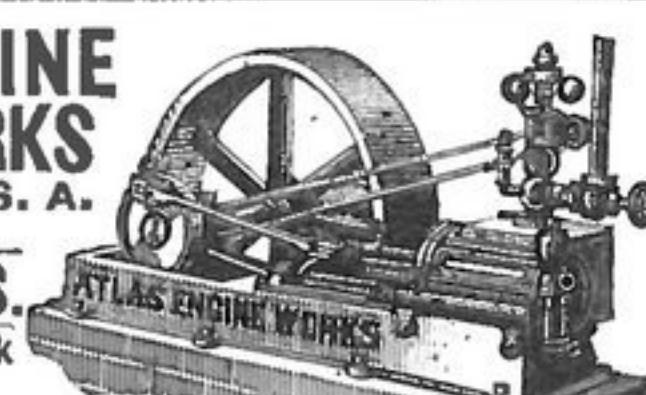
KEISER TURBINE
Only Best Wheel Built.
Examine its construction and be convinced. The only wheel that really distributes and applies the water correctly and scientifically at all stages of gate, and at the same time closes water-tight and has an easy working, balanced, gate. Tell us about your water power.

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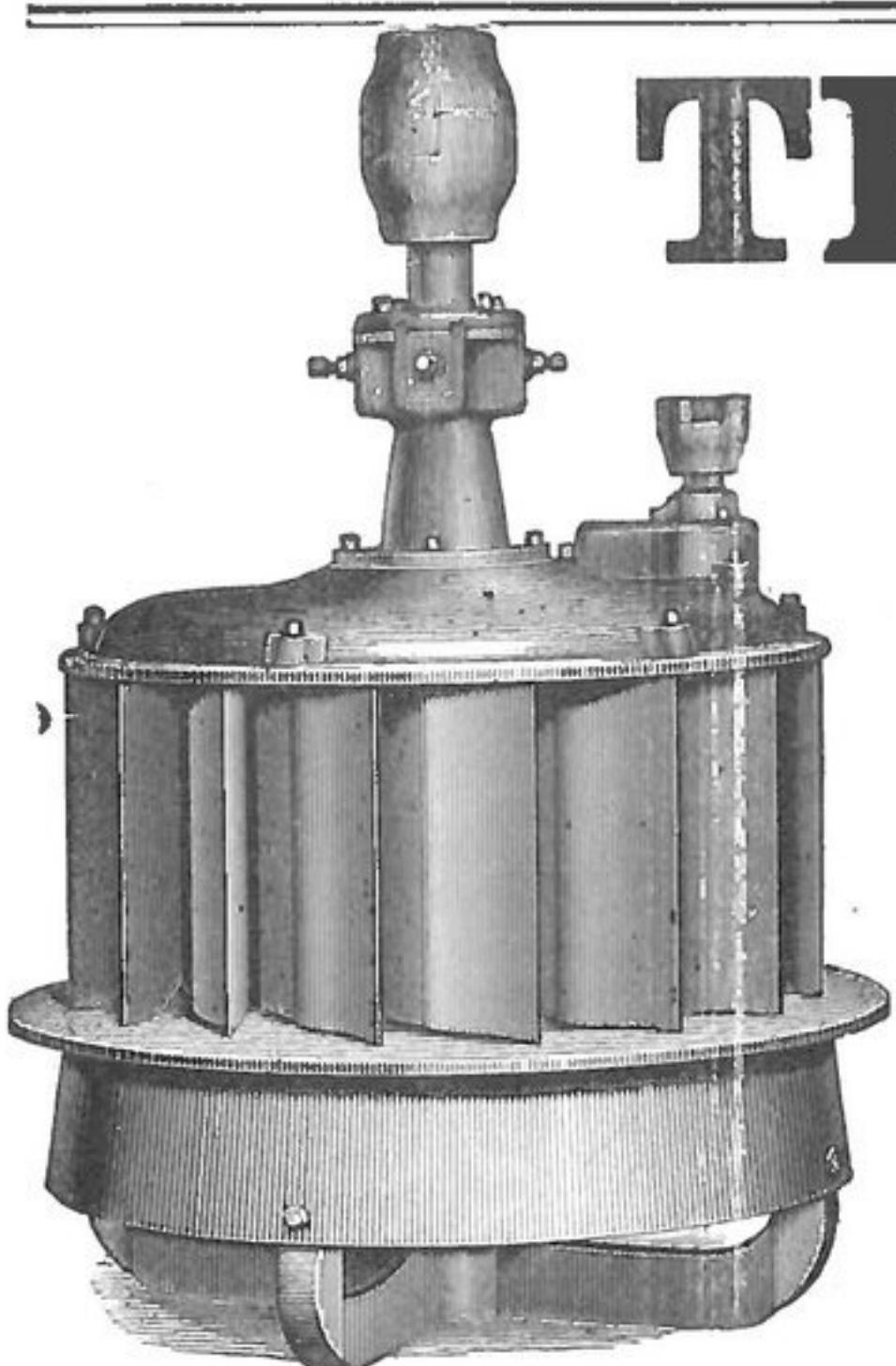
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ATLAS ENGINE WORKS
INDIANAPOLIS, IND., U. S. A.
MANUFACTURERS OF
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Carry Engines and Boilers in Stock
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THE VICTOR TURBINE



Possesses more than Double the Capacity of other Water Wheels of same diameter, and has produced the Best Results on Record, as Shown in the Following Tests at Holyoke Testing Flume:

Size Wheel.	Head in Ft.	Horse Power.	Per Cent Useful Effect.
15-inch.	18.06	30.17	.8932
17½ in.	17.96	36.35	.8930
20-inch.	18.21	49.00	.8532
25-inch.	17.90	68.62	.8584
30-inch.	11.65	52.54	.8676

WITH PROPORTIONATELY HIGH EFFICIENCY AT PART-GATE.

Such results, together with its nicely-working gate, and simple, strong and durable construction, should favorably commend it to the attention of ALL discriminating purchasers. These Wheels are of very Superior Workmanship and Finish, and of the Best Material. We also continue to manufacture and sell at very low prices the

ECLIPSE DOUBLE TURBINE,

So long and favorably known. State your requirements, and send for Catalogue to the

**STILWELL & BIERCE MANUFACTURING CO.,
DAYTON, OHIO U. S. A.**



LESNER'S IMPROVED TURBINE.
Simple, Durable, Strong.
Gate Works EASILY
—AND— RAPIDLY. PERFECT Satisfaction
—IS— GUARANTEED.

W. B. WEMPLE'S SONS, FULTONVILLE, N. Y.



Sight-lines, targets, straight-edges and all other fixings, as well as the extra time and help required to work them with the spirit level, done away with by this instrument.

Jas. Macdonald, 55 Broadway, New York.

LEFFEL'S WATER WHEEL

MADE BY JAMES LEFFEL & CO.

The "OLD RELIABLE"

with improvements, making it the

**MOST PERFECT TURBINE
NOW IN USE.**

Comprising the Largest and the Smallest Wheels, under both the Highest and Lowest Heads used in this Country. Our new Illustrated Book sent free to those owning water power.

Those improving water power should not fail to write us for New Prices before buying elsewhere. New-Shops and New Machinery are provided for making this wheel. Address

**JAMES LEFFEL & CO., SPRINGFIELD, OHIO, AND
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**BURNHAM'S
IMPROVED
Standard Turbine**

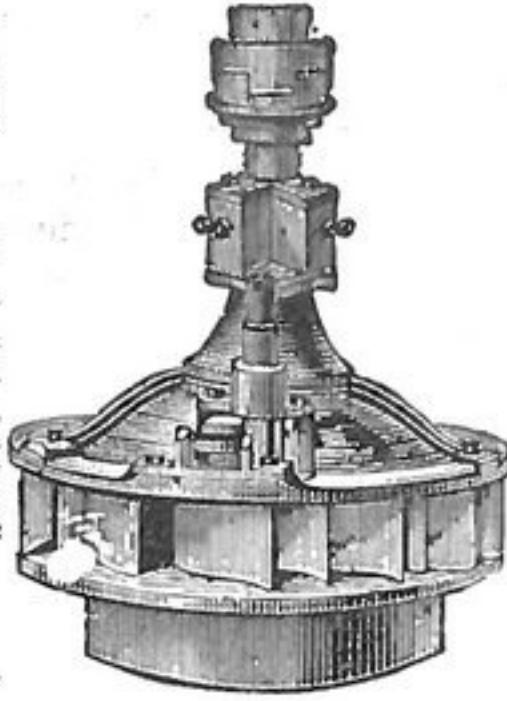
IS THE
Best constructed and finished, gives better Percentage, more Power, and is sold for less money, per horse power, than any other Turbine in the world. New Pamphlet sent free by

Burnham Bros., York, Pa.

**MERCER'S
RELIABLE**

Turbine Water Wheel.

This wheel is acknowledged one of the best on the market. Has valuable improvements in the construction which is commanding the attention of buyers. Send for catalogue and price list. **T. B. MERCER,**
WEST CHESTER,
CHESTER CO., PA.



This Wheel gives high results, and is acknowledged the best, most practical and efficient Turbine made. For Simplicity, Durability, and Tightness of Gate it has no equal.

State requirements and send for Catalogue to
T. C. ALCOTT & SON,
MOUNT HOLLY, N. J.

Improved Success

Percentage.

Full Gate.....	86.29
¾ Gate.....	86.07
½ Gate.....	81.90

This Wheel is Durable and Cheap.

Send for Pamphlet to
S. MORGAN SMITH,
YORK, PA.



DeLOACH WATER WHEELS

From 2-10 to 2,000 horse power. Simplest, most durable, best gate for holding the water fully equal in percentage of power to any wheel made, and price places it in reach of all. Send for illustrated catalogue. **A. A. DeLOACH & BRO.**, Manufacturers, also of Milling Machinery, Atlanta, Ga. Mention this paper.



EVIDENCE.

CASE MFG. CO., COLUMBUS, OHIO.

DETROIT, MICH., May 10, 1884.

GENTLEMEN: I inclose a draft on New York in payment of balance due you on contract; and in reply to your inquiry as to how our Roller Mill is doing, I am happy to say that the whole equipment is working splendidly, and to our entire satisfaction. Our granulations are simply perfection, and we regard your feed on Rolls and Purifiers as the ne plus ultra. Our location is central in the city of Detroit, and you may, with the utmost confidence, invite parties interested to call and see what we are doing. Our flour stands second to none in the city or state, and our clean-up is equal to any in the state.

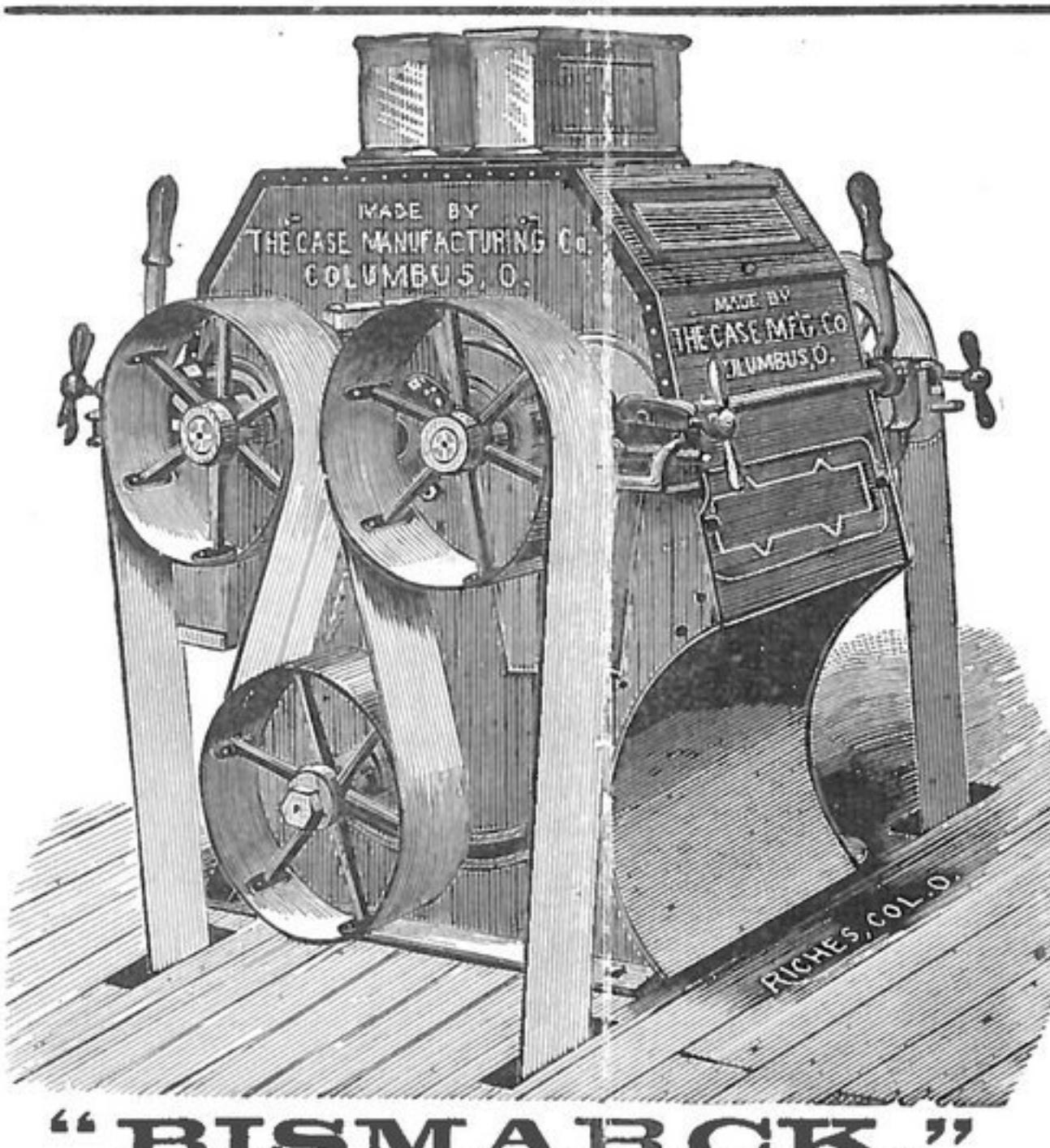
Yours truly,

JOHN CLEE.

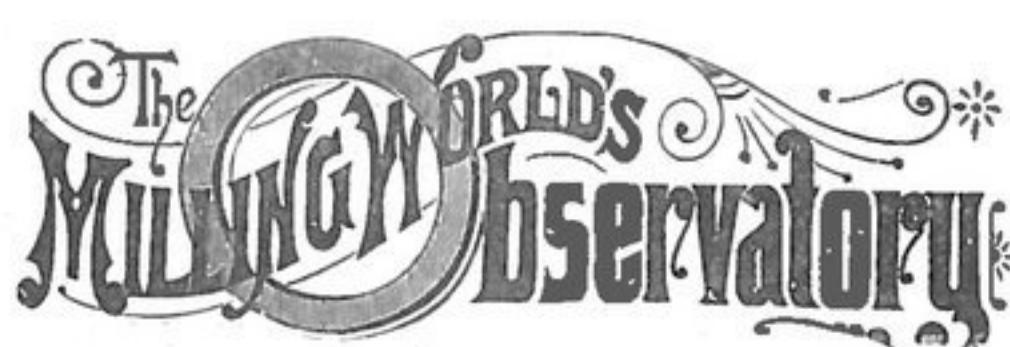
WE CAN DO AS WELL FOR YOU AS WE HAVE FOR OTHERS. WRITE US BEFORE PLACING YOUR ORDER.

CASE MANUFACTURING CO.

COLUMBUS OHIO.



"BISMARCK."



OUR MINNEAPOLIS LETTER.

[From our own correspondent.]

BUDGET OF NEWS.

The time seems to have approached when the production of our mills has to be reduced. Ever since they got water power, early in the spring, they have run steadily as a whole, though not up to the maximum, and turned out a very large amount of flour, not far from 100,000 barrels per week on the average. Milling is extremely dull and discouraging, and with the inactivity which yearly sets in just before the new crop is available, from many of the mills having to shut down for repairs, a falling off in the output may be reasonably looked for. Something of a decrease has been recorded in the past two weeks, the output not exceeding 95,000 barrels. The advance in ocean and eastern freight rates has made millers less anxious to run their mills, and the latter are taking it quite easy. The Washburn mills keep the lead as to the amount of flour made, but are not pushing matters quite as hard as they were a while ago. Their output represents about one-third of that of the whole city. Between fifteen and seventeen mills are running, leaving five to seven shut down. Millers say that they never saw the flour business quite so sick and stay so long.

Milling wheat is in good supply in this market, and is very low, nearly everyone seeming to be on the bear side at present. Receipts continue liberal, and the stock in store here shows not much of a loss. There are about 1,400,000 bushels of wheat in Minneapolis elevators, and 190,000 bushels at St. Paul.

The appended table exhibits the receipts and shipments in Minneapolis for two weeks:

FLOUR		WHEAT.	
Receipts.	Shipments.	Receipts.	Shipments.
Bbls.	Bbls.	Bus.	Bus.
July 1,	875	99,496	
July 8,	375	80,165	
Total	1,250	179,661	59,500

The mill of the Shaw Lumber Co., at Eau Claire, Wis., has been shut down, and will be disposed of. Milling is sort of a side issue with this large company, and it does not care to continue the operation of the mill. Tom Pinches, one of the old stagers on the platform, had charge of it, and has thus been thrown out of a good job.

It is not unlikely that the Crown Roller Mill will add several sets of rolls to its equipment for a seventh reduction.

The head millers took in \$1,900 from their excursion and cleared \$375. The expenses were very heavy, transportation and incidentals amounting to over \$1,500. The boys now have a scheme on foot for a head millers' excursion for their exclusive pleasure. The Manitoba railroad, upon which the general excursion went to the lake, has anticipated their needs by offering them free transportation, and they are disposed to avail themselves of the courtesy.

A representative of Townsend & Co., who operate a mill at Columbia, Dak., was in the city a few days since and bought an engine, which will be used in connection with water power to drive the mill. This firm has had a great deal of difficulty about the stability of its power, and has finally resolved upon putting in steam.

H. G. Goff and C. E. Hurlbut, of Wilmar, Minn., are to erect a 75 bbl. mill at Superior, Wis., the capacity to be increased as soon as practicable to 300 bbls. Mr. Hurlbut was a poor miller working in the mills of this city a few years ago, but is reputed to now be well off. He has acquired his wealth in the milling business. Leaving here with a few hundred dollars in his pocket, he drifted around for a while, finally leasing the mill at Wilmar. Here he thrived and made money, and is now one of the solid men of the town.

The Red River mill at Fergus Falls has been shut down until the new crop, and head miller Milne is in Iowa visiting the "old folks." He passed through the city on his way home.

Kirk & Fender have scored a big victory. The brush and smut machines in the east half of the Pillsbury A mill are to be thrown out, and eight Morgan scourers have been ordered to be put in the place of them, and it is thought that this only paves the way for other changes in the same di-

rection. This is quite a radical change for a mill, and cannot fail to create a furore among cleaning machinery men.

In furtherance of the proposition of the Head Millers' Association to mark the last resting place of the mill explosion victims with a suitable monument, a committee of five, consisting of Messrs. Walsh, McDaniels, Dodge, Williams, Scott and Tamm, was appointed at its last meeting to get designs and prices of monuments. This committee has already conferred with a Maine firm about a \$3,500 monument, and a design of it is being prepared and will be submitted to the Association at its next regular meeting, the first Tuesday in August. Designs and prices will also be secured from other parties. With the proceeds of the excursion, added to what they formerly had, the millers have about \$700 toward the monument fund. The employees of the Washburn mills have added \$500 to this, and Washburn, Crosby & Co., \$500 more, making \$1,700 raised up to date. As several other parties are expected to be equally as liberal, enough to pay for a nice monument seems assured.

The Washburn A and Northwestern mills have put in the electric light, and are now lighted throughout with electricity. The light used is the incandescent; there are 150 in the Washburn A and 40 in the Northwestern. This is a trial, and if satisfactory, the number of lights in the former mill will be increased. Other mills will undoubtedly soon follow the example of these mills in substituting electricity for gas.

The measurement of the water power used by the different mills has resulted in many of them taking more power than their old leases called for and paying for it.

A new company that is about to come before the milling public and ask for its share of favors, is the Rollins Middlings Purifier Co. C. G. Rollins is the leading spirit, and his French air purifier, with improvements, will be its stock in trade. Mr. Rollins is president of the company, L. Swift, Jr., is vice president, and E. G. O'Donnell is secretary and treasurer.

W. J. Fender's trotting mare, Noumona, was the victor in the principal race at the fair grounds last week, making one heat in 2:28 $\frac{1}{2}$. Outside parties timing her claimed that she made the mile in 2:27.

J. C. Menor, the Mazeppa head miller, has been admitted into the Minneapolis Head Millers' Association as an honorary member.

W. D. Hale, of the Washburn Mill Co., came very near being blinded on the Fourth by the premature explosion of a piece of fireworks. He was entertaining his children with fireworks at the time. Both eyes were injured so that for a time fears were entertained that neither could be saved; but his condition has improved so much in the past few days that both will probably be saved.

Our coopers are in a bigger row than ever among themselves, and prices of barrels have sunk down well out of sight in consequence. There are ten cooper shops in the city, and only business enough to support about six or seven. The fight for business patronage has carried prices down, until now the mills are getting ten hoop, full oak barrels at 37 to 38 cents, and it does not appear that bottom has yet been touched. A year ago this time barrels were at least ten cents higher, and then the millers thought that they were getting them cheap. Of course this is a very fine thing for the miller, but it cannot always last, as the cooper is very evidently furnishing barrels cheaper than he can afford to.

Minneapolis, July 12. CALEB.

Notes from the Mills.

Jno. Dwight & Co., New York City, have purchased a Gray noiseless belt roller mill.

Dick's flouring mills near Venice, Ohio, has been burned. Loss, \$20,000; fully insured.

S. T. Miller, Middletown, Va., has bought ten pairs Allis rolls in Gray's noiseless belt frames.

L. V. Rathbun, Rochester, N. Y., has ordered a Gray noiseless belt roller mill for a customer of his.

Peters & Jones, Knoxville, Tenn., have put in three pairs of Allis rolls in Gray's noiseless belt frames.

Geo. S. Jarrett, Des Moines, Ia., has put in a Gray's noiseless belt roller mill for J. F. Briggs, Cooper, Neb.

Wolf & Hamaker, Allentown, Pa., have bought a Gray noiseless belt roller mill for W. Berringer, Catawissa, Pa.

J. B. Miller & Co., Ashley, O., have ordered one additional pair of rolls from the Case Mfg. Co., Columbus, O.

The failure is announced of the Golden Age Flouring-Mill Company, of San Francisco, with liabilities of \$100,000.

The Case Mfg. Co., Columbus, O., are furnishing A. J. & F. E. Davis, Shaftsbury, Mich., with rolls and other machinery.

Bauenfeind & Metzger, Glenbeulah, Wis., have recently purchased four pairs of Allis rolls in Gray's noiseless belt frames.

The Case Mfg. Co., Columbus, O., have an order from E. S. Tracy, Golconda, Ill., for two pairs of rolls with automatic feed.

Geo. Graham, Trenton, Mo., has given an order to the Case Mfg. Co., Columbus, O., for two pairs of rolls with patent automatic feed.

The Case Mfg. Co., Columbus, O., have lately shipped to Brudie & Co., New Haven, Ind., two pairs of rolls with patent automatic feed.

Benj. Charles, Clear springs, Md., has ordered a No. 2 four-break reduction machine and four pair Allis rolls in Gray's noiseless belt frames.

The Case Mfg. Co., Columbus, O., have an order from H. H. Coppock, Pleasant Hill, O., for two pairs of rolls with patent automatic feed.

A telegraphic order from J. K. Mullen & Co., Denver, Colo., for two additional No. 1 double purifiers, was given to the Case Mfg. Co., Columbus, O.

Minnesota has placed at the disposal of the Horticultural Society of that State \$5,000 to facilitate collections of exhibits for the New Orleans Exposition.

The roller system for grinding corn and rye is being introduced into the 28,000 gallons daily capacity distillery of the Enterprise Distillery Co. of Pekin, Ill.

The seventy-five barrel flour mill at Moorhead, Minn., owned by Nelson Overbee, has been sold and possession given to George N. Kneisley, of Dayton, Ohio.

Elevator men at Duluth have brought action under the fire ordinance against the Standard Oil Co., for keeping its oil sheds too near the two outside elevators.

The Case Mfg. Co., Columbus, O., have an order for one "Little Giant" break machine and scalper making three separations, from J. C. Cranshaw, Charleston, Mo.

At Lawrence, Kan., July 8, Smith's elevator burned, together with several other buildings. Twenty-five thousand bushels of grain were in the elevator. Loss, \$30,000.

At the quarterly meeting of the Board of Trade at Montreal, the action of the Dominion Government was highly commended for its promptness in reducing the canal tolls.

Simmons & Sewell, of Virden, Ill., are making some changes in their mill and have ordered two pairs of rolls with patent automatic feed from the Case Mfg. Co., Columbus, O.

Goold Bros., of New Windsor, Ill., have lately removed their mill to Howard, Dakota, and have ordered four additional pairs of rolls from the Case Mfg. Co., Columbus, O.

Richmond City Mill Works, Richmond, Ind., have ordered from the Case Mfg. Co., Columbus, O., one "Little Giant" break machine for Samuel McCray, Clinton Valley, Ohio.

The Case Mfg. Co., Columbus, O., have lately furnished Butler & Brenner, Wheatland, Ind., with two pairs of rolls and one No. 1 double purifier all to have patent automatic feed.

While dragging in the lake at Oconomowoc for the body of William Bieberman, the searchers raised from the depths the water-wheel of a mill that had been swept away by a freshet forty years ago.

Wm. Peter, Columbiaville, Mich., has given an order to the Case Mfg. Co., Columbus, O., for four pairs of rolls with patent automatic feed, three improved "Case" centrifugal reels and other machinery.

The new elevator at Sabin, Minn., constructed by the Farmers' Elevator Company, is the first one of that series to be completed. It is a very fine looking building, and all the stockholders are very much interested in it. It is safe to presume that it will handle a good deal of wheat this year.

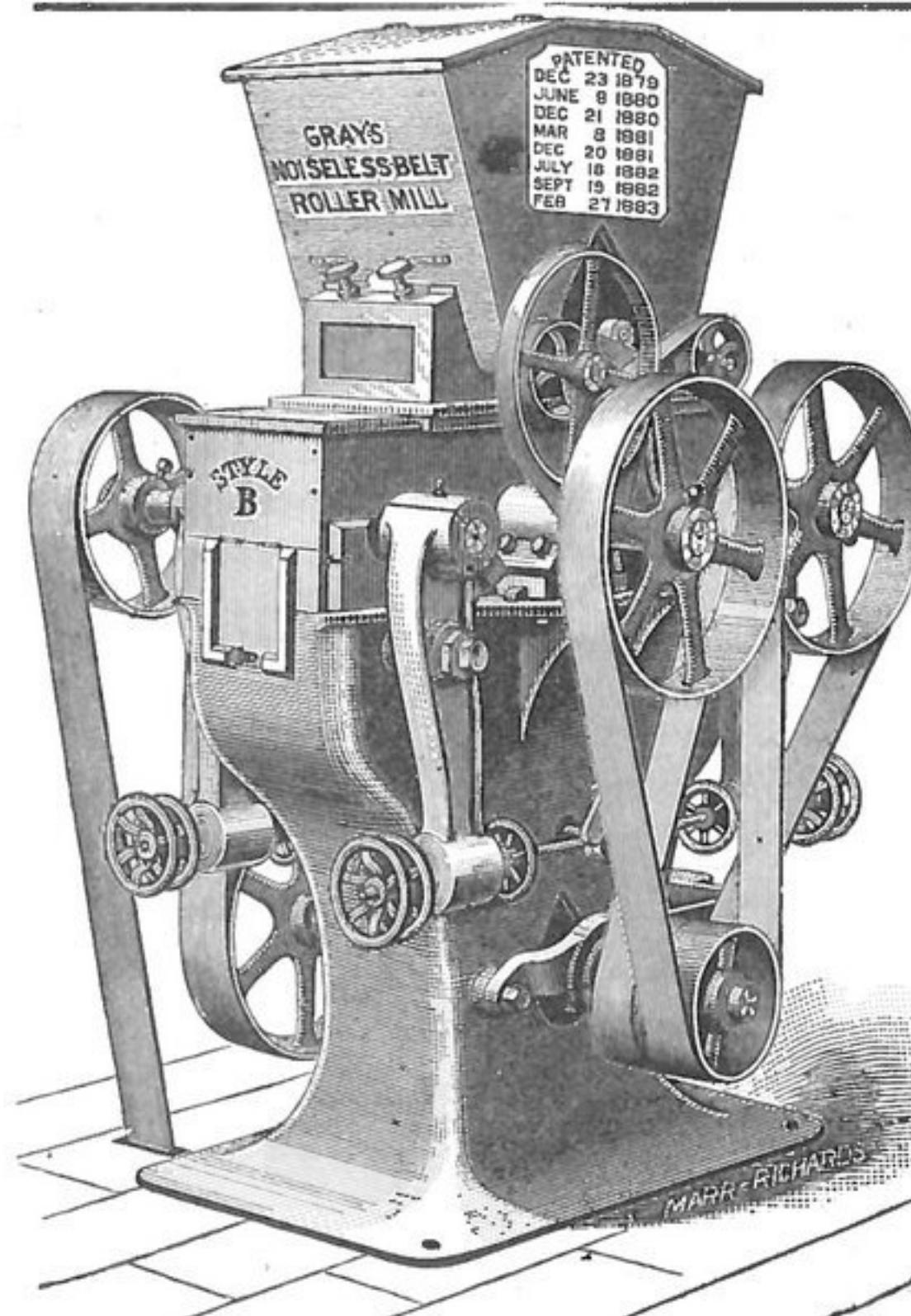
Mr. C. H. Seybt, the well known miller of Highland (Illinois), who was recently in London, expresses the opinion that owing to the vast improvements lately made in English mills, and the excellent crop outlook this year, it is highly probable that the American export trade in flour will dwindle from lack of demand.

The Westinghouse automatic engine is rapidly coming into favor with millers. Within the last few days orders have been received from C. Arnold & Co., Sterling, Kansas; Alexander Wilson, Clarke, Dak.; R. C. Gresham & Co., Coffeeville, Arkansas; J. C. Dunwoody, Lamar, Mo.; Smith & Wilkinson, Black's, Station, S. C., besides a number from the smaller mills in the south.

In some circles the impression prevails that millstone dressers are things of the past, but this is not so. There is a constant demand for them, and they are very highly appreciated. In making a change in his advertisement, Mr. C. A. Bertsch, of Cambridge City, Ind., writes: "My Diamond millstone dresser has now been in use for four years, and I have not had a single call for repairs in that time." Certainly a very good record.

On July 9, the elevator of Angst & Smith, Severance, Kan., took fire. An earnest effort was directed toward saving it by the citizens, but having no fire engine, and nothing but a bucket brigade, but little could be done, owing to the difficulty of getting at the fire, and the entire building was soon a heap of smoldering ruins. The building contained a large amount of small grain and corn, which was also destroyed. The fire was undoubtedly the work of an incendiary, and was the second attempt that had been made the same week to burn the elevator. It was set on fire on July 6, but was discovered in time and extinguished before any damage had been done. It was suspected by the proprietors that it was done by some party in that place, and last night Mr. Smith remained in the elevator until after 1 o'clock, hoping they might return. At that time he concluded no further attempt would be made and left for his house, but had hardly reached there when he looked back and saw the elevator in flames. The elevator is insured, but to what amount could not be learned.

Chicago, of late years, says the *Western Manufacturer*, has waned as a great flour market. The great mills of the Northwest have partially destroyed her prestige in that respect. The extensive flour merchants of eighteen and twenty years ago, who did an enormous business in handling and shipping flour, are no longer engaged in that occupation, but have sought other occupations which have yielded them more lucrative returns. Twenty years ago firms which today handle no flour at all, at least none of any consequence, at that time had a trade which ran up to the hundreds of thousands of dollars, some of them into the millions. But, alack-a-day, the glory of Chicago has departed to a large extent in this respect. As a once promising milling center, the anticipations of the old-time flour merchants has long since vanished—faded and gone forever. The direct exports of flour to Europe on bills of lading issued in Chicago are less than 300,000 barrels a year. As a matter of fact, St. Louis has about 25 flour mills with a capacity of producing somewhere between 11,000 and 12,000 barrels of flour daily. There are also nearly an equal number of mills located in adjacent towns in Illinois and Missouri, which are either owned, operated, or controlled by St. Louis millers or flour merchants. In 1882, St. Louis manufactured 1,850,215 barrels of flour, and shipped 3,305,765 barrels. The diminished demand in Europe for Chicago flour has grown so small that it would take a pretty powerful microscope to reveal just where that demand is. We cannot do otherwise than state the case as it stands. The growth of the milling interest in the west and northwest has been so great during the past few years that Chicago has been working in more profitable fields—building up her iron industries, extending her live stock facilities, enlarging and increasing her packing facilities, and extending, in a general way, every industrial pursuit in which there is a prospect of solid substantial gain. If the rapid growth of the milling industry in this country increases during the coming decade (and from present indications it seems altogether probable that it will), as it did during the ten years ending with 1880, the date of the last census, the milling interest will develop enormously. In 1880, there were in the United States 24,338 flour mills; capital employed, \$177,361,878; number of hands employed, 58,407; total wages per year, \$17,422,316; value of product, \$505,185,712. We have now reached a season of the year when many of the mills at the leading milling centers are idle—some for the reason that markets are in an unsatisfactory condition; others to make necessary repairs, and others, again, for the purpose of introducing new and improved machinery, etc., etc. Chicago accepts, and is fully satisfied with, the situation as it is. It is not likely that she would change it if she could. She is on a safe footing even if the flour trade was entirely eliminated from commerce, outside of supplying the demands of the local trade. She is the greatest railroad center in the United States, and her railroad lines extend into a vast extent of territory, all of which is more or less dependent upon this great city as a market for its products, or as a source of needed supplies. These railroad lines are so vast that it would be no exaggeration to say that every railroad line in the country has a direct interest in catering, to some extent, to the commercial interests of the city. Her lake commerce it is unnecessary to refer to here.



GRAY'S NOISELESS BELT

ROLLER MILLS.

STYLE "B" for SMALL MILLS

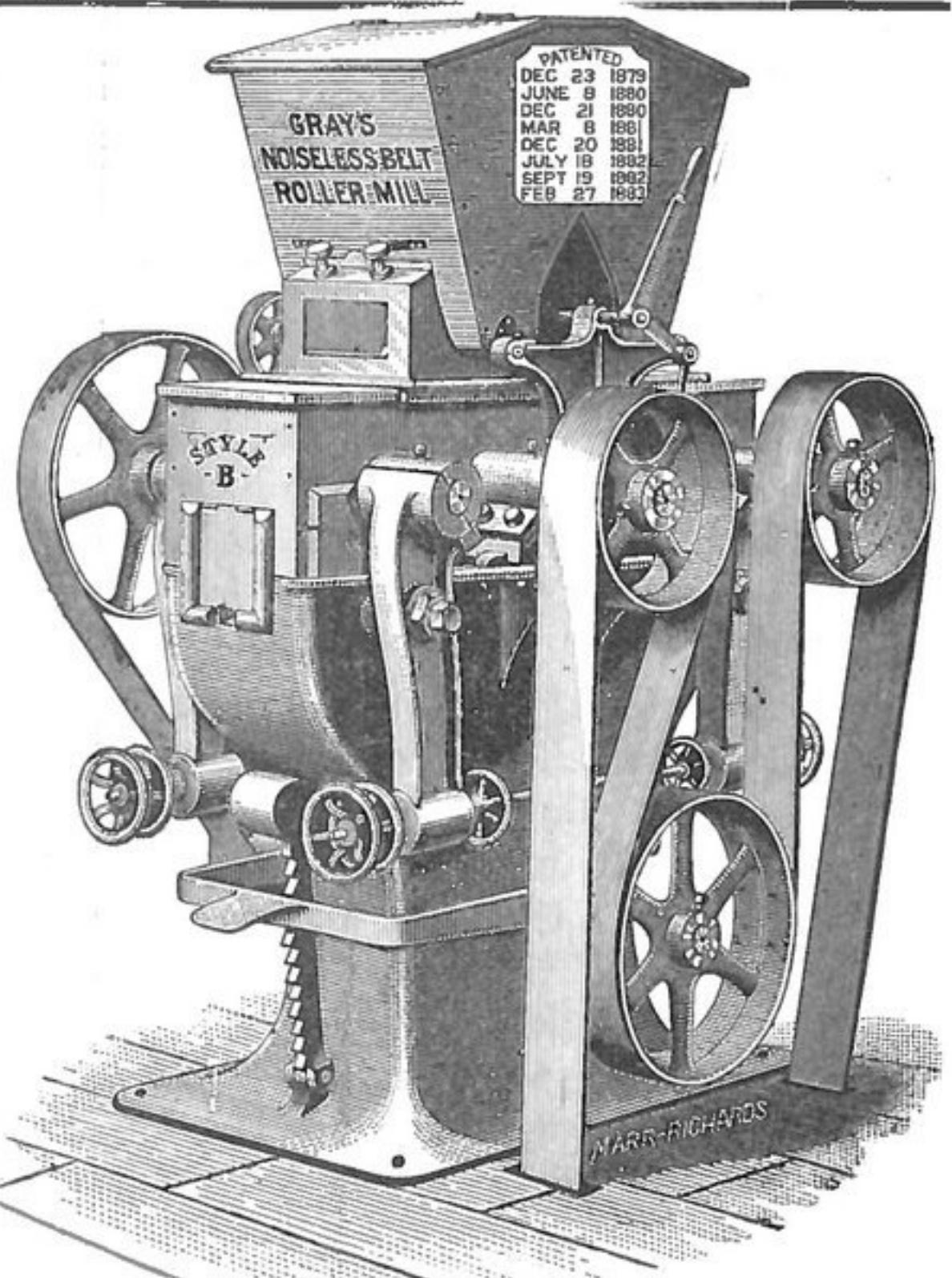
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E. P. ALLIS & CO.

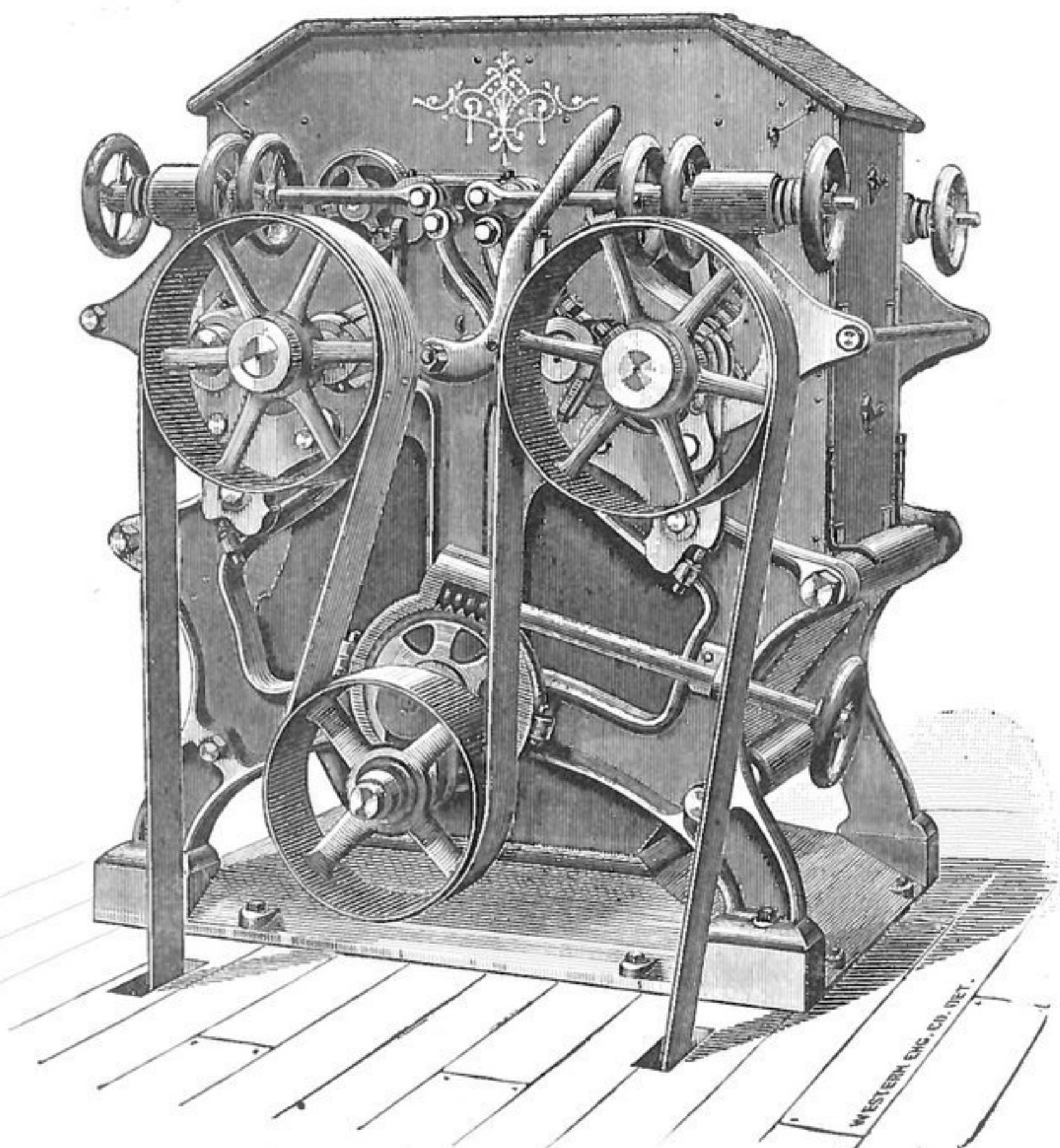
SOLE MANUFACTURERS,

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The MILLER ROLLER MILL



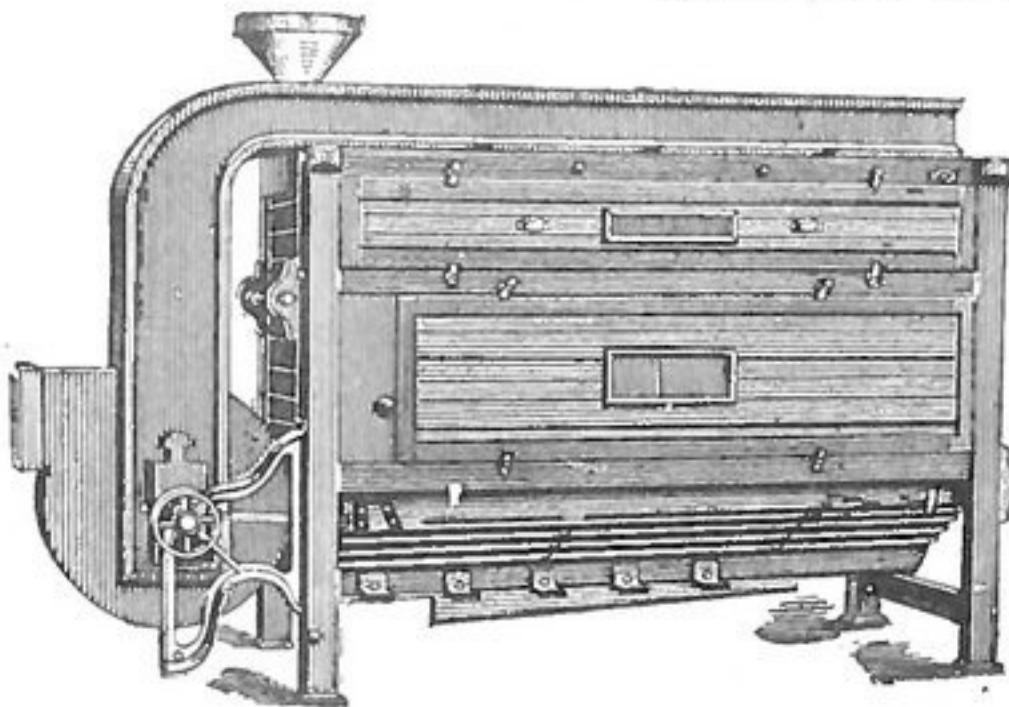
Has no superior. Universal Tightener, Automatic Feed, Tight Base, Noiseless, with Non-Cutting Corrugations. We also manufacture the Rider Wheat Break, which has no equal for 1st, 2d and 3d Breaks. Send for Reference and Circulars of our Machines.

THE MILLER CO., CANTON, O.

GOVERNORS { For Water Wheels } Cohoes Iron Foundry and Mch. Co.
Send for Catalogue. Cohoes, N. Y.

WOLF & HAMAKER'S LATEST IMPROVED MIDDLING PURIFIER AND DUST CATCHER

The Only Machine with Two Sieves, for Fine and Coarse Middlings. The Only Machine with Balance Motion, Consequently no Jarring or Shaking.

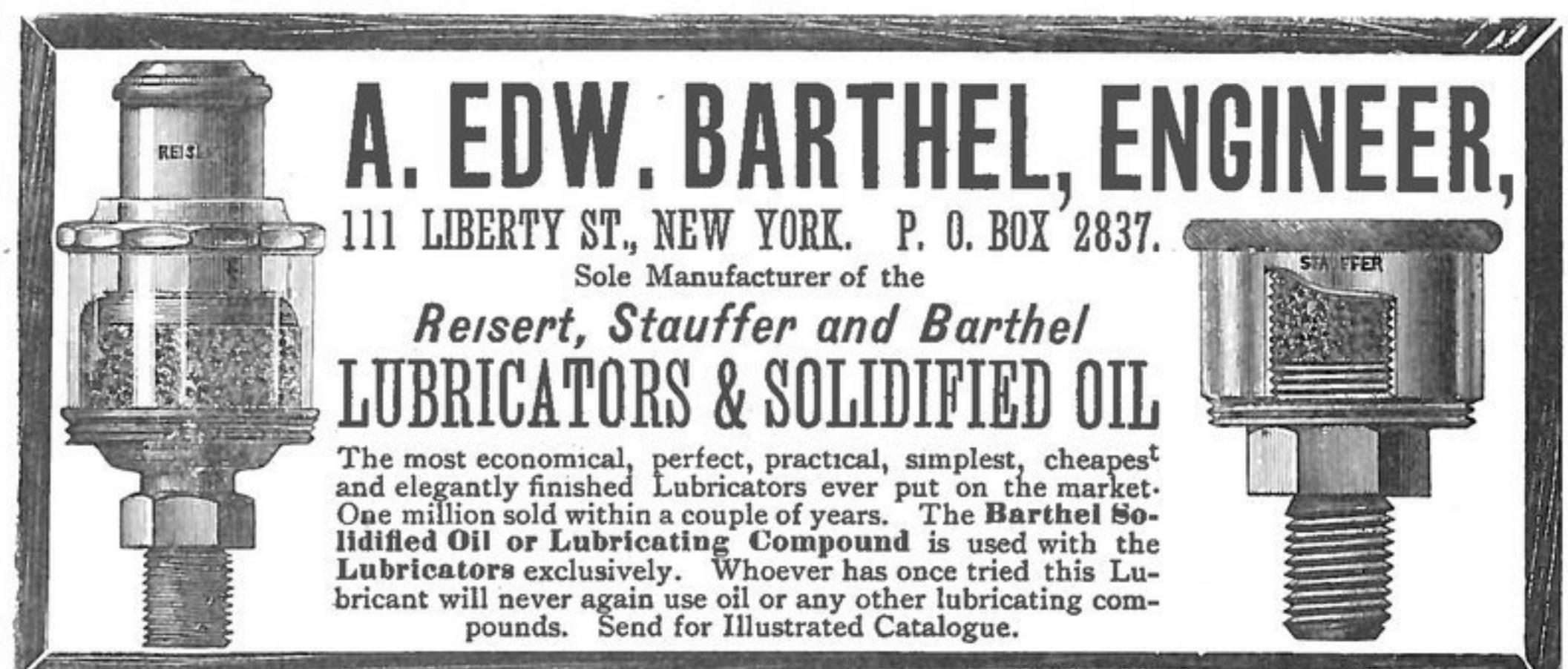


ADAPTED to all styles of milling, high or low grinding, as fine or coarse middlings can be treated separately on one machine. Economy in space, as the machine is a double one. A perfect cloth-cleaning device. No brushing or wearing of cloth. Licensed Under All Conflicting Patents. We are the Agents for the E. P. Allis Roller Mills, and Mill Builders and Contractors. We are at all times prepared to furnish plans and estimates, and to contract for the erection of first-class mills of any desired capacity from 50 to 500 barrels. Parties contemplating Roller Mills or remodeling old mills will find it to their interest to write for Prices and Terms. Wolf & Hamaker's Latest Improved Bolting Chest. Also Mill Furnishings of Every Description.

OUR DUST CATCHER IS GIVING THE BEST OF SATISFACTION, AND OUR PRICES ARE SUCH THAT EVERY MILLER SHOULD HAVE THEM.

WOLF & HAMAKER, ALLENTOWN, PA.

ON VIEW AT PERMANENT EXHIBITION OF MILL MACHINERY,
36 BROADWAY, NEW YORK.



A. EDW. BARTHEL, ENGINEER,

111 LIBERTY ST., NEW YORK. P. O. BOX 2837.

Sole Manufacturer of the

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LUBRICATORS & SOLIDIFIED OIL*

The most economical, perfect, practical, simplest, cheapest and elegantly finished Lubricators ever put on the market. One million sold within a couple of years. The Barthel Solidified Oil or Lubricating Compound is used with the Lubricators exclusively. Whoever has once tried this Lubricant will never again use oil or any other lubricating compound. Send for Illustrated Catalogue.

GREAT TRIUMPH IN INVENTION

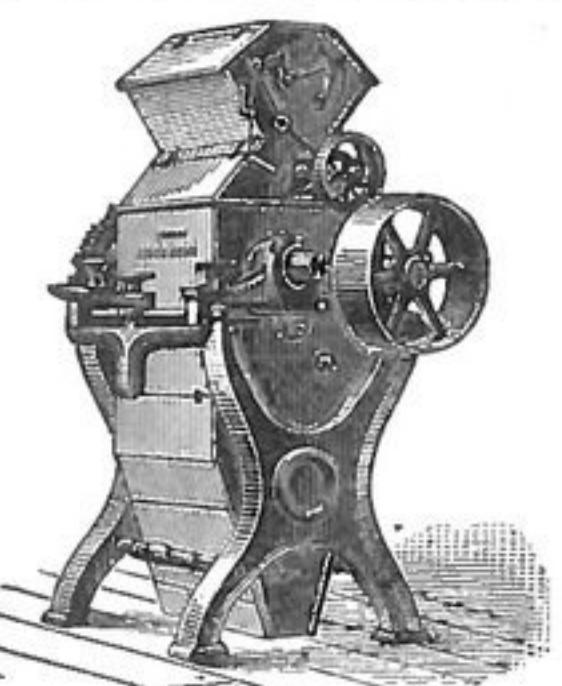
The Simplicity so long sought after in Roller Mills attained at last.

ONE, TWO, OR FOUR BREAKS IN A SINGLE FRAME

SIZES OF ROLLS 9x18 and 7x14 INCHES.

NO CROSS BELTS. NO FRICTION. NO LOSS OF POWER.

Reduction Rolls, Bolting Cloth, Purifiers, Middlings Mills and Bolting Chests. General Mill Furnishing Supplies.

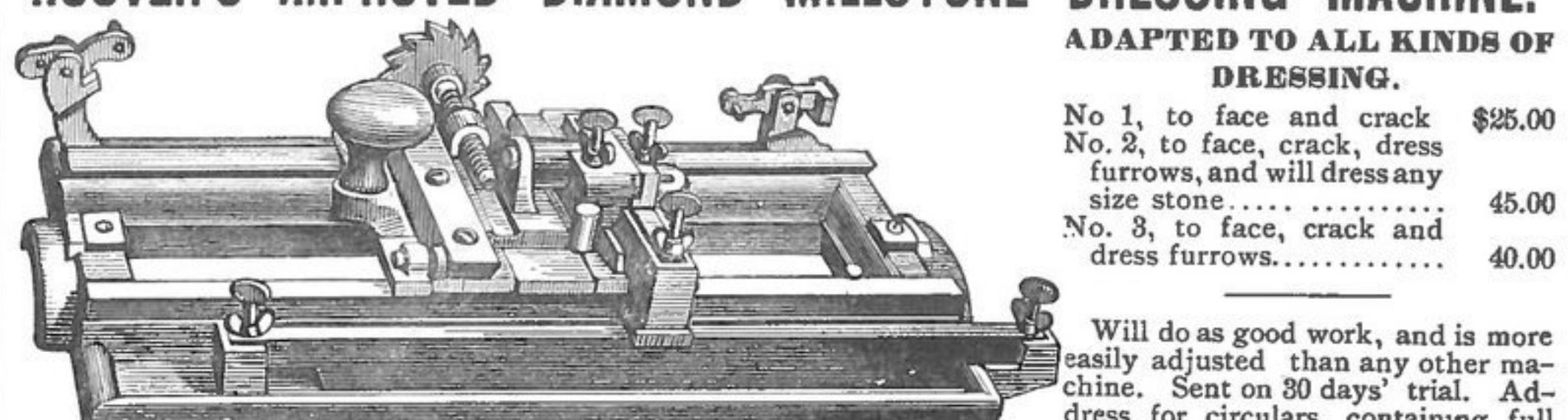


W. H. BARBER & CO., SOLE MANUFACTURERS, ALLENTOWN PA.

HOOVER'S IMPROVED DIAMOND MILLSTONE DRESSING MACHINE.

ADAPTED TO ALL KINDS OF DRESSING.

No 1, to face and crack	\$25.00
No 2, to face, crack, dress furrows, and will dress any size stone.....	45.00
No. 3, to face, crack and dress furrows.....	40.00



Will do as good work, and is more easily adjusted than any other machine. Sent on 30 days' trial. Address for circulars, containing full information.

C. S. HOOVER, Pattee and Manufacturer, 409 East King St., LANCASTER, PENN.





AN AMERICAN EXHIBITION IN LONDON.

THE very novel idea of an American Exhibition in London has been started in the United States, and already the preliminaries are settled, and the promoter, General Norton, is here making his preparations, says the *Millers' Gazette*. At the late Fisheries Exhibition, the United States was ahead of every other section in the interest and good organization of its display, while at Paris and Vienna, the exhibits from across the Atlantic offered by their ingenuity and novelty, a more stimulating field for examination and study, than did the more elaborate displays of older countries. But all the examples of American products which have been shown in Europe, have been partial and small in amount, and could not be considered representative either of the wealth, the resources, or the ability of the nation which sent them. Consequently, it is felt that the time has come for a really comprehensive and characteristic collection of American products and manufactures to be shown here, and the scheme has met with the heartiest support from railway companies, manufacturers, and producers of all kinds.

The exhibition is to be essentially national in character, and will display the American artisan at work, with white and colored men engaged upon their respective handicrafts. The date of opening is fixed for May 1, 1886, to give ample opportunity for the great preparation which is anticipated, and also to secure a large part of the exhibits which will be set free before that time, by the closing of the New Orleans Exhibition. It is certainly too early now to prophesy that it will be a success, and that thousands will crowd to see the products of the country which has more natural advantages than any other land in the world, and is inhabited by the most energetic race on the globe.

Hitherto foreign exhibitions of manufactures have been mainly—except as regards artistic work copies, more or less modified, of English productions, and have often produced a feeling of self-contentment in the British mind by no means favorable to progress. But this time the case will be altered; the object of the individual American is to get on in the world, and thus instead of the scheming and inventing being left to a distinct branch or class, every man is eager to add his little improvement to the trade or calling that he follows. Thus, little by little, alterations are produced until the whole is changed, and English manufacturers will find that they will stand less in the position of past-masters, and more in the position of novices than they have done at any previous exhibition held in Europe. The offices of the secretary are at 7 Poultry, E. C.

THE FLOUR MILLING TRADE OF IRELAND.

During the past few years the milling trade of Ireland has been undergoing a process of revolution, the importation of American and Continental flour having been carried on to such an extent that the home article, manufactured by the old-fashioned methods, has been practically superseded in the market, and hundreds of mills have been entirely closed, says a correspondent of the *Millers' Gazette*. It is certain that the old methods will no longer avail in the production of an article that will command the market. The millers, seeing this, are gradually adopting the most improved machinery for the production of the finest flour. Mills similar to those at work in

America and on the Continent, particularly in the wheat-growing country of Hungary, are being erected by the more enterprising of the home manufacturers.

The millers of Derry have not been behind in the matter of improved processes for the manufacture of an article that can compete successfully with the finest products from abroad. Messrs. Gilliland have introduced into their mills at the Rock similar roller machinery to that erected by Mr. John Christy here for the manufacture of flour, and a third local firm are about entering into a contract for the introduction of the Hungarian system into their establishment. These elaborate mills cost about £5,000 each.

The only hope of retaining the milling industry rests in the extensive adoption of these roller mills. When these are in operation there will be no reason why flour should be imported into Derry at the rate of thousands of sacks per week, as it has been. Last year the total imports of flour into that city amounted to about 20,000 tons. While the fine flour is sent across the channel to be sold, the "bye products" are kept at home—the coarse flour to feed the people and the bran and pollard to feed the live stock. The price of feeding stuff in this country is therefore considerably increased, while the flocks and herds have decreased by the million, because they cannot be fed in competition with the foreigner, who has all the refuse of the wheat manufacture to fall back on.

Were all the flour used in this country manufactured in Irish mills the farmers would be amply provided with feeding stuffs at a cheap rate, enabling them to raise more cattle, and the whole country would be benefitted. As to the quality of the home-manufactured flour there can be no doubt. The new mills now in operation are exactly on the same principle as those which produce the best American and Continental brands. It is remarkable, but none the less a fact, that some purchasers of flour here will pay £1 to £4 a ton more for the foreign than for the Irish made flour, notwithstanding the fact that the quality of both is nearly equal.

NOTES.

The annual meeting of the German Millers' Association was held in Breslau on June 22 in presence of 400 members.

The Prouvy mills at Prouvy, one of the largest and best mills in France, is about to be transformed into a complete roller mill.

The very decided opposition against the increased flour tariff in France, has induced the French Government to reject the proposition and retain the old tariff.

The Millers Association of Bavaria at their meeting on May 25 adopted a resolution to petition the government for an increased tariff on flour as well as on feed imports, if the proposed high tariff on grain should become a law.

A commercial treaty between Germany and Korea, has been submitted to the German Parliament. The treaty opens five important ports to Germany trade and there cannot be any doubt that the offered opportunities will be improved to the utmost by the merchants of Germany.

An international seed and grain exhibition will be held in Magdeburg, Germany, during September. Competition trials of the different grain cleaning machinery will form an additional feature of the exhibition. Applications will be received up to August 20 by Messrs. A. Lueddecke & Co., Magdeburg.

On Wednesday, July 9, the New Albert Bridge Flour Mills, at Battersea, belonging to Messrs. Marriage, Neave & Co., and the new dock, called Ransome's Dock, in connection therewith, will be formally opened, a special steamer taking the visitors to the mill, and subsequently to the "Star and Garter" Hotel at Richmond, where a dinner in honor of the occasion will be held.

Messrs. Howes & Ewell have been honored with an order from the British Government, for another of their "Eureka" machines (a No. 2 combined scourer and separator with shaker screen) for the mills at Portsmouth. This is the fourth order this firm has been honored with during the past

18 months, which speaks well for the "Eureka" as well as for Messrs. Howes & Ewell.

The total number of failures in the United Kingdom and Ireland reported to *Kemp's Mercantile Gazette* (London) for the week ending June 21, was 84, as compared with 205 and 241 respectively in like weeks in 1883 and in 1882. England and Wales had 54, as against 185 and 225 each; Scotland 27, as against 18 and 14, and Ireland 3, as compared with 2 and with 2 in the third weeks of June in 1883 and of 1882.

The large floating elevator which was recently sent to Bordeaux by an energetic elevator company, is to be transferred to Rouen, much to the regret of the Bordeaux merchants, &c. This change is due to the relative insufficiency of grain imported at Bordeaux, insufficient facilities for working the elevator at Bordeaux, and lastly to a somewhat strange predilection shown at Bordeaux for the old style of discharging ships by hand labor.

"The first rains of any consequence this season," says the *Mexican Financier* of June 28th, "have set in during the week upon our central table land. Public fears of a ruinous drought are somewhat allayed, though we have not yet really escaped such a disaster. Already crops were greatly damaged, and in some districts entirely destroyed; considerable cattle have perished, and the country must expect a scarcity, and consequently high prices of grain and meat."

The session of the Boswein (Prussia) milling school opened on the 1 of June, and closes on September 30. The terms are about \$35.00 for the session. A course of study extending over five or ten month, or of two year, can be pursued, so that the pupil can obtain a theoretical as well as a practical education in the art of milling. Scientific and mechanical instruction is given, as well as the elements of commercial education, including bookkeeping, export trading, political economy and commercial usages.

A fire occurred at Mr. F. Watson's mill at Stockton-on-Tees, which is one of the mills which was to be thrown open to the visitors at the British Millers' Convention, a few days before the opening of the sessions. The mill was shut down as usual, and all was reported right. The morning a fire was seen in the screen room, which is supposed to have originated in the dust room. The cleaning machinery, which consisted of Howes & Ewell's separator, smutter, and brush, were placed in a building alongside the mill. This building, which was a store or warehouse as well, is completely gutted, a quantity of wheat being also badly damaged, but the mill proper, in which is Seck's system, remains intact.

Conversation amongs millers at the British Convention last month naturally turned upon rolls v. stones, whenever an opportunity offered. Of the total number of millers present, more than fifty have had more or less long experience of roller milling, so that a very useful interchange of ideas was possible, and we doubt not that much information was obtained by those millers in the unenviable position of feeling the necessity for a change, and yet not knowing what to do for the best says, the *Miller's Gazette*. As a matter of fact the complaints of competition from roller milled flour were more numerous than ever before, and were far from counterbalanced by the arguments of champions of the millstone which we were wont to hear.

The *Mark Lane Express* of July 7, in its review of the British grain trade for the week, says: The hot weather increased in severity during the week, but the drought is now apparently broken, rain storms being reported from all parts of the country. The crop is thick, but weak, owing to want of rain. Corn is considered to be of good average quality. Sales of English wheat during the week, 28,294 quarters at 37s rd. Foreign trade is restricted, the demand being for consumption only at barely previous rates. In off cost cargoes there has been little inquiry, and prices are slightly lower. Continental buyers, who supported the market the past fortnight, now hesitate to buy. Eighteen cargoes arrived, seven sold, three withdrawn, twelve remained; thirty cargoes now due. Flour dull and unchanged. Maize decreased 3@6d. Barley firm.

Consul Cattin, of Stuttgart, writes to the State Department that in spite of the numerous attempts to check the tide of emigration from Germany to this country, ninety-seven per cent. of those who emigrate from Germany go to the United States. "Attempts," he says, "to check this great movement or divert it into other channels are numerous and determined. Letters from dissatisfied emigrants to the United States are published in the leading newspapers, and efforts made to divert the stream of emigration to South America or other German colonies." "There is," he says, "a German Colony in Montevideo, another in Chili, and quite a numerous one in

Brazil. Attempts are made to induce emigrants to go to Australia, but without success, for of the 200,000 emigrants which have left Bremen and Hamburg in the past year, 194,000 sailed for the United States."

A representative of the Brush Electric Light Company has made arrangements for lighting the City of La Plata, Argentine Republic, and expects to complete arrangements soon for lighting a part of Buenos Ayres. The recent exhibition of Brush lights at Rio Janeiro by the company's agent was a decided success and won the praise of all present. As this is one of the best gas-lighted cities in the world the success was all the more gratifying. Mr. J. Potter the company's representative at Yokohama, Japan, will return to Cleveland in a week or two via Europe. He has been exceedingly successful in introducing the light in Japan and China. He has established and has in successful operation a plant for lighting Shanghai, has recently contracted for the lighting of several Japanese cities, and has also supplied a great deal of apparatus to the Japanese government for use in its arsenals and navy.

AUTOMATIC SCALES AND REGISTERS

The only perfect scales and registers in the world. Particularly adapted for millers' requirements. Decidedly useful in other lines of manufacture.

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A tool for Cutting, Leveling and Polishing the Furrow and Face of Millstones.

Eight inches long, 2 1/2 inches wide, 1 1/2 inches thick. Received the highest and only Award given to Polishers at the Millers' Exhibition, Cincinnati, Ohio, June, 1880.

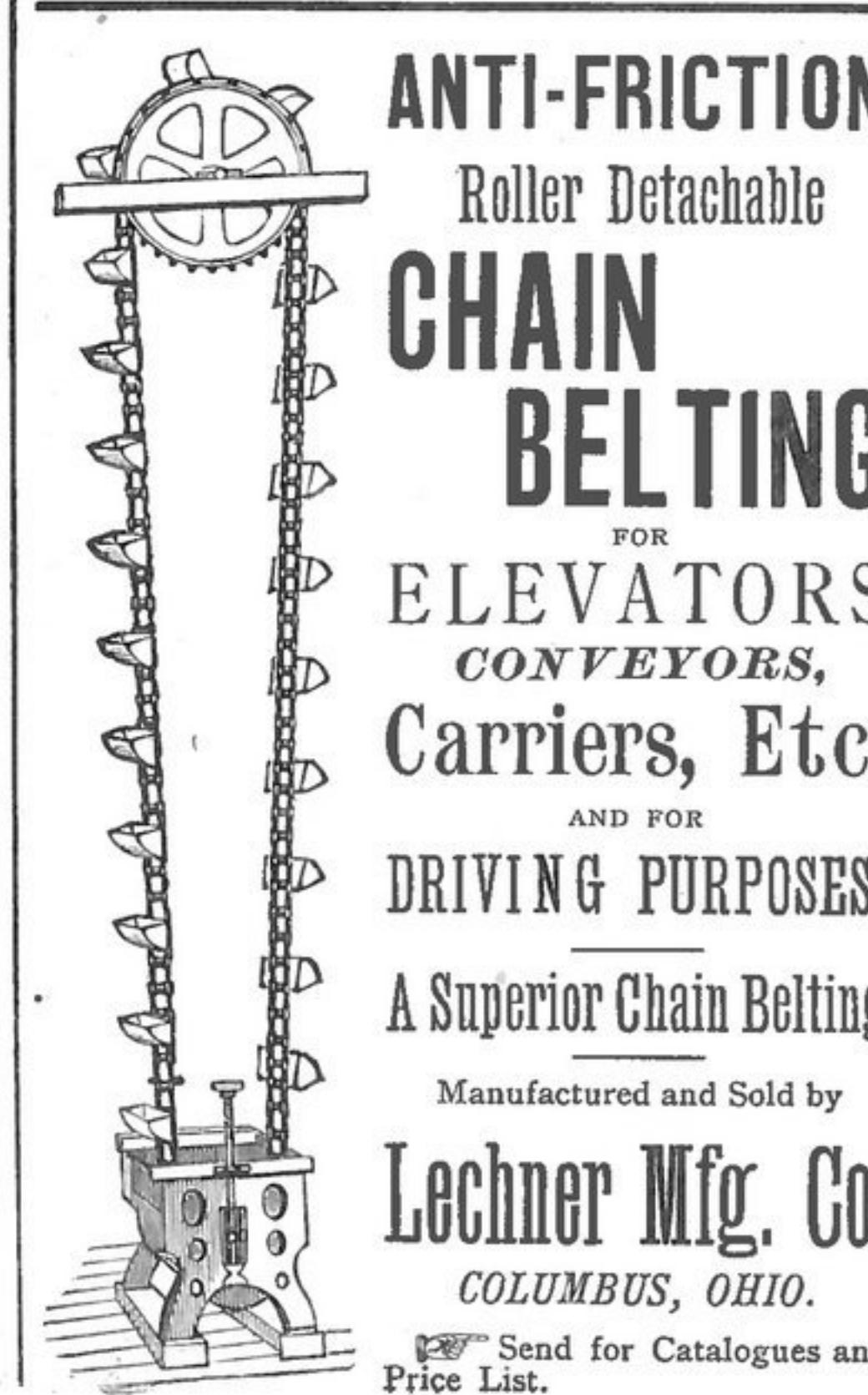
For facing down high places on the burr, this tool has no equal, and can be done much better and in one-sixth the time than with the mill pick. It is much larger, cuts better, can be used on either face or furrow, can be used until the corundum is entirely worn out on one side and then turned on the other side. Has over four times the amount of corundum and when the corundum is worn out can be replaced in the handle at a small cost. Sent by express, \$3.50. Satisfaction guaranteed, or money refunded. Address

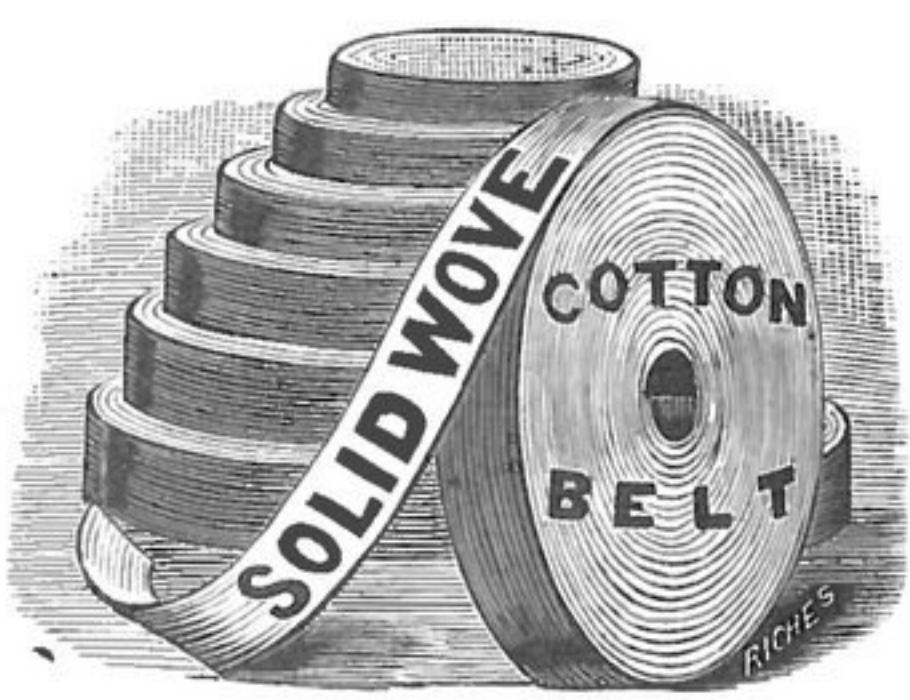
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 Leather Cotton Rubber } BELTING, BOLTING CLOTH
 ELEVATOR BUCKETS, BOLTS, MILL IRONS, &c.
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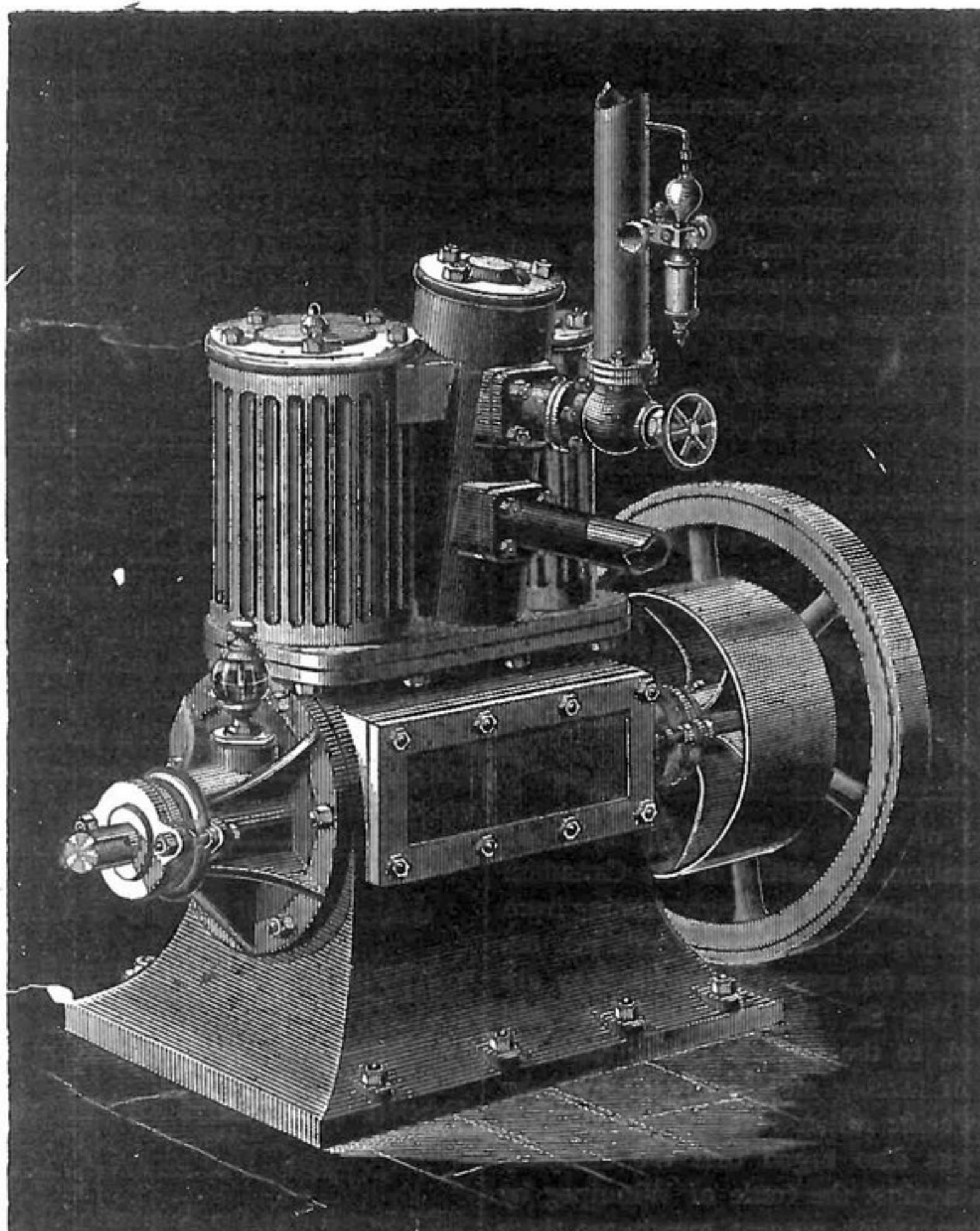
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REAR VIEW, WITH ONE FLY WHEEL REMOVED.

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Average Sales, 1600 H. P. Per Month.



The Westinghouse Automatic Engine has no equal in *Sensitive and Close Regulation, Low Cost of Maintenance, and General Convenience*, and in all other essential features of a First-Class Engine. It is guaranteed to have no Superior, Occupies the Least Space, and saves Half the Cost of Foundations. All Sizes Built Strictly to Gauge, Lend Parts Interchangeable. Every Engine Tested to Full Power Before Leaving the Shop.

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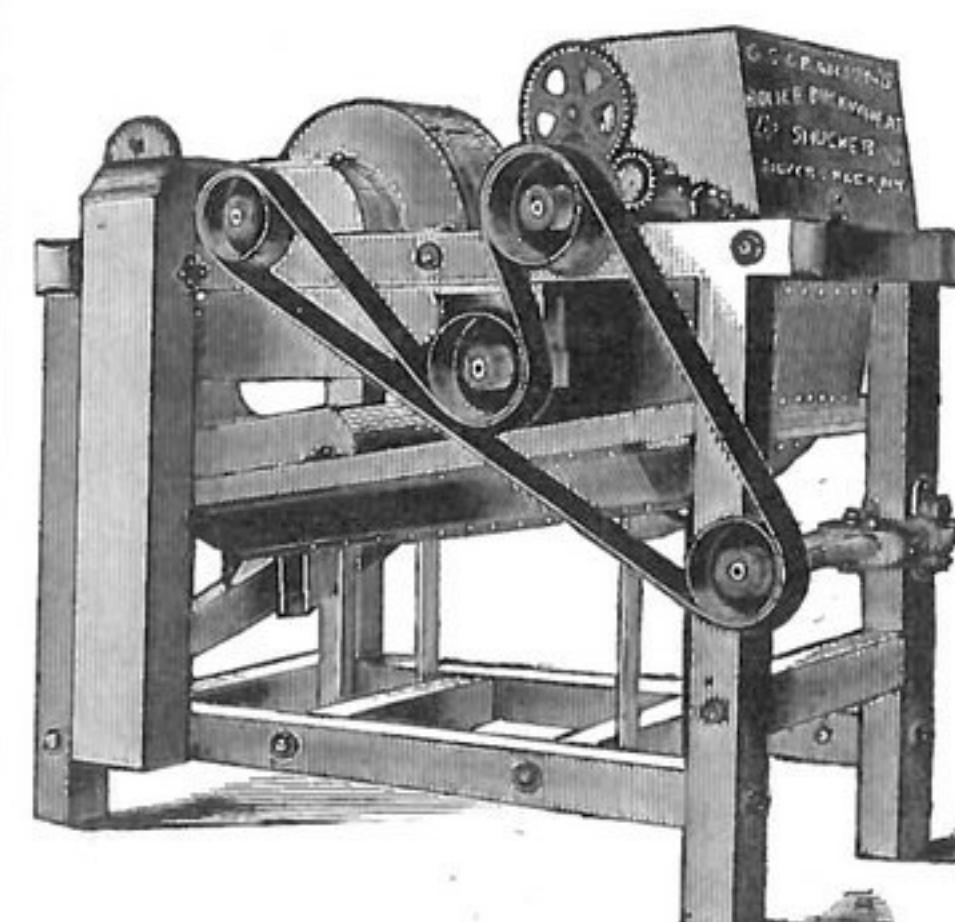
ROLLS RE-GROUND

And Re-corrugated to order. Our Machinery for this purpose is very accurate. Can do work promptly.

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WILL FIND IT TO THEIR DECIDED ADVANTAGE TO INVESTIGATE THE CONCEDED MERITS OF



G. S. CRANSON & SON, PROPRIETORS SILVER CREEK, N. Y.

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Empire Portable Forge Co.
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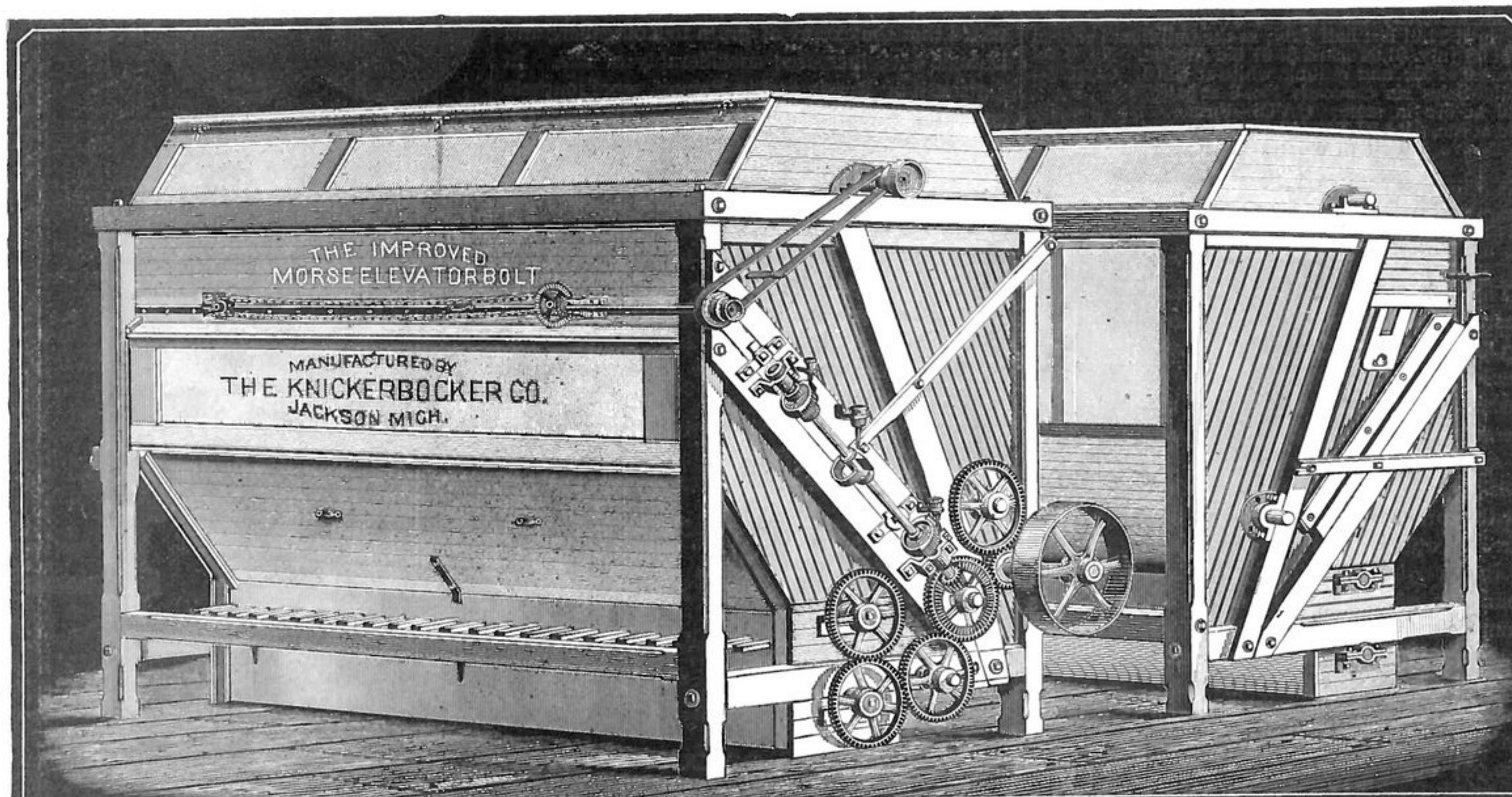
Our Celebrated Patent Head Linings are straight Rounded on their upper edge nail on barrel. They will freely through the square are packed. We can furnish from twelve to seventy-two GOOD Head Lining can



Round Edge Bent Barrel grained from end to end, and crimped or bent ready to not mold, as the air circulates bundles of 250 in which they them any desired length, inches, and as cheap as any be sold.

CAN FILL ALL ORDERS AT SIGHT.

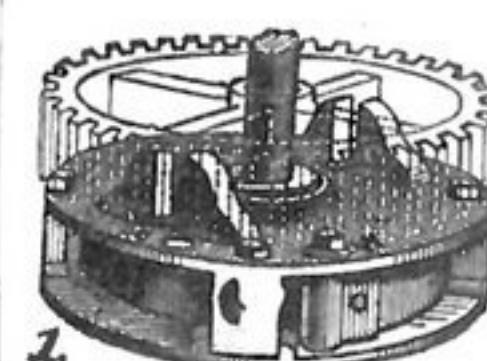
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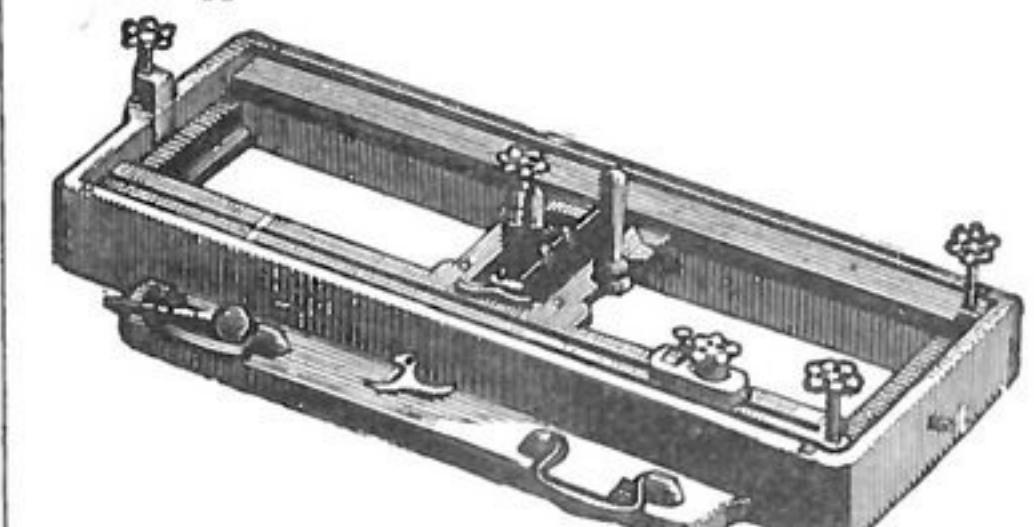
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EUREKA COIL SPRING
 Warranted to Prevent Backlash. Over 1,000 in use.
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AUTOMATIC
ROD FEED!
 A NEW INVENTION.
 NO EQUAL IN MANY RESPECTS.



Adapted to all kinds of dressing on right or left hand burrs; also convenient to place machine over spindles, which are ample wide. All adjustments are quick and easily made without the use of any tool. By the use of this rod feed deeper facings can be done by once going over the face, as the feed can be set to over 1,000 cuts per inch, and is instantly regulated as desired, to suit the depth of cut, in other words, to cut fine or coarse when in motion, making it complete, and a great saving of time in this respect, as well as others. For ease of operation and adjustment it is far superior, also for merit and simplicity. All is fully guaranteed to be as represented. Machines have now been in use for four years, and not a single call has been made for any repairs. Also a new Improved Patent Diamond Holder, which is specially adapted to hold any shaped diamond; convenient to set a diamond. Machines will be forwarded on their own merit, by parties giving good references. Send for circulars giving full description.

C. A. BERTSCH,
 Sole Manufacturer, Cambridge City, Ind.

HAS BEEN AWARDED
FIRST AND ONLY PREMIUM
AT THE
Millers' International Exhibition.



Office of THE MILLING WORLD.
Buffalo, N. Y., July 16, 1884.

New wheat is beginning to make its appearance in the west and southwest with considerable freedom, and we hear that the flour made therefrom in some sections is of something more than ordinarily good quality. Virginia and southern Illinois mills are already at work grinding new wheat. The first carload was received at New York on Wednesday last, and brought 92½c per bushel. *Bradstreet's* says: "The weather reports abroad as well as at home are somewhat improved, and with the continued outlook for more than the average crop in Europe as well as at home, the low stocks and heavy weekly decrease in the visible supply do not avail much as levers in the face of rather free receipts of the new crop and the growth of the work of harvesting." A prominent St. Louis operator regards matters differently, as on Saturday last he said: "Wheat has ruled strong to-day. A few local operators sold several millions short yesterday and day before, and they have been hammering the market to-day, but the strength of the legitimate situation has counteracted all their efforts. About a million bushels of wheat has been taken for export to-day in New York, Baltimore, Chicago, Milwaukee and Toledo, and I know of several large lines of September wheat held by exporters. The situation has never been so strong or the shipping demand so good, but the trade will not realize until all the warehouses get empty and no new wheat coming in. Foreign investors are selling their chromos and buying wheat. It is the cheapest and safest thing in the whole world to-day. If exporters continue a few days longer the bulls need no leaders. The bears will then buy it."

At this season of the year millers are practically between hay and grass. This year, with low prices for old wheat, a big crop of new and to all appearance a lack of demand for flour, there is greater uncertainty than ever as to the proper and profitable course to take. *Bradstreet's* says: "Wheat flour has been dull. The prevailing price for city mills is \$5, and millers are rather hunting for business at this rate. Western millers are dissatisfied with New York prices for their product. Southern Illinois and Virginia millers have as yet sent no new flour in this direction. New York mills are running on full time, twenty-four hours daily. A representative of George V. Hecker's mills states that the shipments to South and Central America and the West Indies from this market are worth from \$1 to \$1.50 per barrel more than the class of goods sent there formerly. There is a brand sent to the United Kingdom also which is sold there at a figure below that at which the British millers can buy the wheat and grind it for. The total daily capacity of the New York and Brooklyn mills is 6,300 barrels. On Friday last flour was firmer in sympathy with wheat. Exporters were taking some from city mills, but there was no gain in prices."

The future of flour export is a question upon which opinion is divided but our friend C. H. Seybt, of Highland, Ill., if reports are to be believed, has pretty nearly solved it. For instance, *The Millers' Gazette*, of London says: Mr. C. H. Seybt, the well known miller of Highland, (Ill.), who was recently in London, expresses the opinion that owing to the vast improvements lately made in English mills, and the excellent crop outlook this year, it is highly probable that the American export trade in flour will dwindle from lack of demand. The St. Louis *Globe-Democrat* of Sunday last reports Mr. Seybt as saying: I find there is a steady demand for export, although of course it is merely consumptive, and no one is laying in any stock of flour. Orders for 1,000-barrel lots, however, are not uncommon, and there is every indication that we shall see a revival this year of the export trade.

The New York *Commercial Bulletin* says: It is estimated that ninety per cent. of the winter wheat mills are now shut down on old crop wheat and getting ready to go on the new grain this and next week. It will take till August for the mills to get their orders out of the way and to fill up their neighborhood demand, after which the new flour will begin to come forward in telling proportions to this market, although it will be well

DUFOUR & CO.'S CELEBRATED BOLTING CLOTH.

FIRST AND ONLY PREMIUM
OVER ALL COMPETITORS!
PURCHASE ONLY
FROM RELIABLE DEALERS.

into September before the movement will be general. There is a fair export demand for choice extra winters at \$4.50; choice spring wheat extras at \$4.00@4.50, and will take all the lower grades on the basis of these figures, but the low grades keep scarce. The trade brands are slow, but the market is steady at the late decline; \$6.40 is top for spring patents, with sales seldom going over \$6.25; \$6.50 is about the top for winter wheat patents. The best rye flour brings \$4.40, with occasional lots at \$4.50; stock light; demand moderate; market closes quiet but firm. Corn goods are steady, with a moderate demand. The market for bag meal is a shade easier in tone; demand light. For mill feed the demand is fair; offerings moderate; tendency upward.

BUFFALO WHEAT MARKET.

Buffalo, July 15th, 1884.
Very little doing the past week in grain, though the demand for Northern Pacific wheat for export is good. No. 1 hard firm at \$101, No. 2 hard 95, No. 1 regular 94½. White wheat firm and very scarce, small lot extra No. 1 Michigan sold at \$1.05, No. 2 red 92@93. Corn in fair demand. No. 2 sold at 56@56½; good samples of feed corn can be bought at 52@52½.

Oats dull sales of few car loads on track at 37½ for No. 2 white.

JAMES S. McGOWAN & SON.

FOREIGN EXCHANGE.

Sterling exceptionally dull, owing to their being no mail until Wednesday. The posted rates closed at 4.84½ for sixty-days' and 4.86½ for demand. The actual rates ranged: At sixty-days' sight, 4.83½@4.83½; demand, 4.85½@4.85½; cables, 4.86@4.86½, and commercial, 4.83½@4.82. Continental exchange quiet and steady; francs, 5.21½@5.20½ and 5.18½@5.17½; reichsmarks, 94½@94½ and 97½@95; guilders, 39½ and 40½. The closing posted rates were:

	60 days.	30 days.
London.....	4 84½	4 86½
Paris francs.....	5 18½	5 16½
Geneva.....	5 18½	5 15½
Berlin, reichsmarks.....	95	95½
Amsterdam, guilders.....	40½	40½

BUFFALO MARKETS.

FLOUR—City ground clear Duluth spring \$5.00@5.50; straight Duluth spring, \$5.50@5.75; amber, \$5.50@5.75; white winter, \$5.25@5.50; new process, \$6.50@6.75; Graham flour, \$5.00@5.25. Western straight Minnesota bakers, \$5.50@5.75; clear do, \$5.00@5.50; white winter, \$5.50@5.75; new process, \$6.50@7.00; low grade flour, \$2.50@4.00. CORNMEAL—Market steady, with a fair demand. Coarse, \$1.20; fine, \$1.30 per cwt. RYE FLOUR—In fair demand at \$3.75@4.25. OATMEAL—Ingersoll, \$5.75; Bannerman's granulated, \$6.00; Schumacher's Akron, \$6.25 per bbl. BUCKWHEAT FLOUR—Demand fair at 3.50 per cwt. WHEAT—Quiet. Sales 10,000 bu No. 1 hard Northern Pacific Saturday afternoon at \$1.00%. To-day 5,000 bu, do at \$1.01 last half July; at the Call Board offered at \$1.05 July, \$1.02 asked \$1.01 bid August. No. 2 red nominal at 95c, and milling white at \$1.04. CORN—Dull. Sales six car-loads No. 3 at 54½@55c. No. 2 held at 57c in store. OATS—Firmer. No. 2 white held at 38c. BARLEY—Season over; market nominal. RYE—No. 1 Western nominal at 71@72c.

SOUTH AUSTRALIAN WHEAT CROP, 1883-84.

The early estimates of the wheat crop of South Australia were twelve bushels per acre, or 23,153,812 bushels. Later the average yield was placed at 10 bushels per acre, or 18,461,510 bushels. The official estimate just received makes the acreage 1,846,151 acres, with an average yield of seven bushels of 56 lbs. each. The crop of 1882-3 was from 1,736,531 acres, with an average for the three preceding crops of 4½ bushels per acre. It appears that the crop of 1883-4 in some of the outlying counties, on one of the poorest 32 pounds of wheat per acre, and the highest returns from five other counties was 3 bushels and 42 pounds per acre. The final estimate of the crop as officially given, is 14,649,230 bushels of 56 lbs. each, which is the largest crop produced in the colony, or double the crop of 1882-3, and 14,260,964 bushels for the crop of 1879-80 from 14,850,076 acres.

The crop and surplus for export are given officially as follows:

Gross product 1,846 acres at 7 bushels of 56 lbs.	14,649,230
Deduct—	
Food requirements, 300,000 population 5½ bushels each	1,650,000
Seed for estimated area, 2,000,000 acres	2,000,000
Leaving a surplus for export of (56 lbs. each)	10,999,230

The exports to May 17 had been 5,786,667 bushels of 60 lbs, leaving at that date 4,479,282 bushels of 60 lbs. available for export. The crop in bushels of 60 lbs. is 10,265,949 bushels after deducting the requirements for home use for food and seed. The crop in bushels of 60 lbs. in 1883-4 was 13,672,615 bushels. The crop of the six Australasian Colonies on this basis will be less than 30 million bushels to 36 million bushels. The crop of the six Colonies was, in 1879, 36,346,950 bushels; in 1880, 31,568,928 bushels; in 1881, 29,675,899 bushels. The exports in 1879 were 10,053,224 bushels; in 1880, 15,577,960 bushels, and in 1881, 11,631,217 bushels.

The wheat area of the six Colonies was in 1877, 2,743,434 acres; in 1880, 3,376,084 acres; in 1881, 3,361,529 acres.

The population of the six Australian Colonies in 1881, was 2,742,550.

The colonies having small wheat production and large population proportionally, imported from the Colonies having small population and large wheat production proportionally 3,097,550 bushels in 1879, 3,498,434 bushels in 1880, and 3,049,181 bushels in 1881.

The annual requirements of the six Colonies for food and seed are about 20,000,000 bushels of wheat on the basis of 3,000,000 population, and 3,500,000 acres area under wheat.

These facts show that the quantity of wheat surplus Australia will supply to Europe in 1884, will be much less than the early estimates, probably not more than 15,000,000 bushels altogether, and not so much as this if the other Colonies shall have an output as much under early estimates as South Australia.

THE Board of Trade at Winnipeg have had under consideration, the action of the Canadian Pacific Railway, in regard to freight coming from the East, it being claimed that goods are detained at Emerson for several days after they are delivered by the St. Paul, Minneapolis and Manitoba road, to the Canada Pacific road, for the purpose of forcing merchants to import by the Canada Pacific rail and water route via Port Arthur. It was also urged that the company discriminates against the trade of Winnipeg by high local rates, which prevent merchants there competing with Montreal houses. It was finally decided that it would be advisable to put a line of steamers on the Red river, to run between Emerson and Winnipeg, and a committee was appointed to go to St. Paul and Chicago, to confer with the managers of the various railways on the subject. The deputation will start immediately, and prompt action is anticipated.

IN a commercial letter from the St. Petersburg correspondent of the *Frankfurter Zeitung*, it is stated that the export of grain to Königsberg and Dantsic have increased considerably of late. In the south of Russia and in Poland, wool markets are being held in many districts. At Charkew, where it is intended to hold periodical wool auctions, in imitation of those held in other countries, some 400,000 pud of wool of all kinds are offered for sale, but few sales have as yet been effected, though many foreign buyers have visited the market. At Warsaw, the arrivals of wool are smaller than they were last year; up to the 18th of June, 37,324 pud have been stored. The results of the shearings show a deficit of three to eight per cent.

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Steel Being Used in its Construction.

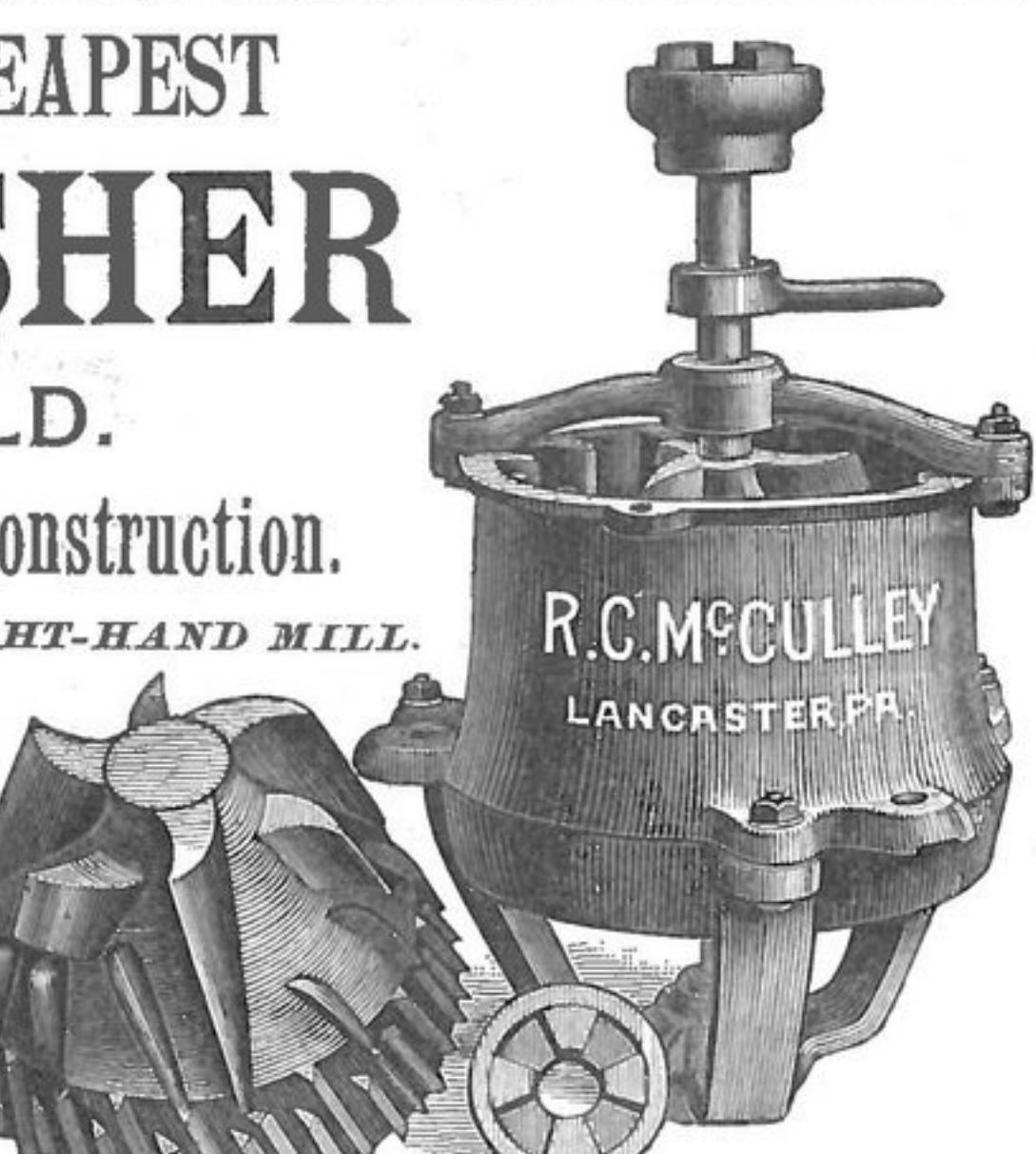
PRICE, 30.00.

CAPACITY 75 BUSH. PER HOUR.

Thousands of these Crushers are now in use, and giving entire satisfaction.

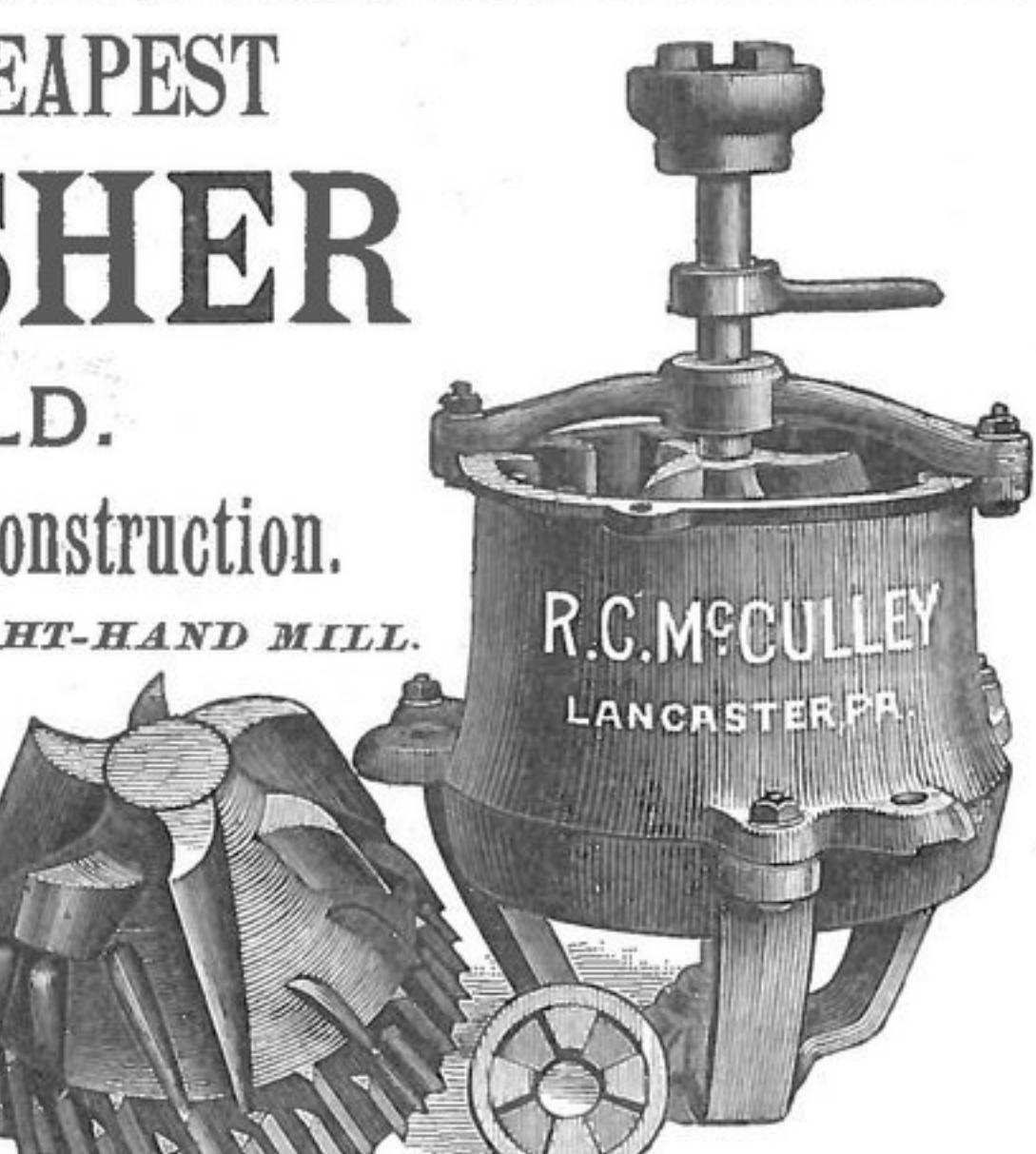
Please Send for Circulars.

R. C. McCULLY, LANCASTER, PENN.



GOLD MEDAL—SPECIAL, 1ST ORDER OF MERIT.

Picks will be sent on 30 or 60 days' trial to any responsible Miller in the United States or Canada, and if not superior to any other picks made in this or any other country, there will be no charge, and I will pay all express charges to and from Chicago. All my picks are made of a special steel, which is manufactured expressly for me at Sheffield, England. My customers can thus be assured of a good article, and share with me the profits of direct importation. References furnished from every State and Territory in the United States and Canada. Send for Circular and Price List.



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Builders from the Raw Material of

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WE ARE THE SOLE OWNERS FOR THE UNITED STATES OF ALL THE PATENTS UPON THIS ROLLER MILL.

*This Is the Only Roller Mill Made Having All the Essentials
Needed In Successful Milling.*

500 BARREL MILL IN MISSOURI.

Read what an Old Miller who has Thirty-Four Pairs of these Rolls in Constant Use, Says:

MESSRS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen: In regard to the workings of our new mill erected by you, will say it is working fully up to and beyond our expectations. Our average work is fully 88 per cent. over your guarantee. Since starting our mill last July we have had no complaint of our flour from any market where sold. It gives universal satisfaction, and we have it scattered on the trade from Chicago to Galveston, Texas. Our yields are all that are attainable. We have tested it on both Spring and Winter wheats with satisfactory results on both varieties. Since the mill was turned over to us we have not changed a spout or a foot of cloth, nor have we found it required to make any changes. We have run as long as six days and nights without shutting steam off the engine, not having a "choke" or a belt to come off. The mill is entirely satisfactory to us, and for a fine job of workmanship, milling skill and perfection of system, we doubt if it is surpassed in the United States to-day. It is certainly a grand monument to the ability and skill of Col. C. A. Winn, your Milling Engineer and Designer. You may point to this mill with pride and say to competitors, "You may try to equal, but you will never beat it." Wishing you the success that honorable dealing deserves, I am,

OFFICE OF DAVIS & FAUCETT MILLING CO.,
ST. JOSEPHS, Mo., Nov. 28th, 1883.

Yours, etc., R. H. FAUCETT, PRES.

500 BARREL MILL IN ILLINOIS.

OFFICE OF DAVID SUPPIGER & CO.,
HIGHLAND, ILL., Jan. 10, 1884.

MESSRS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gents: We started up our mill in June last year, and it gives us pleasure to say that your Roller Mills are doing splendid work and give us no trouble. Your milling program required no changes, and concerning yields, we get all the flour from the offals, and we sell our best grades in the principal markets of the United States at the highest prices offered for any flour. All the machinery made by you is first-class, and we would not know where to purchase as good.

Yours respectfully, DAVID SUPPIGER & CO.

125 BARREL MILL IN INDIANA.

LAPEL, MADISON COUNTY, IND., Jan. 10, 1884.

NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen: The 125 barrel All Roller mill you built us has been running all summer, and does its work perfectly. Before contracting with you for this machinery we visited many Roller Mills throughout the West and Northwest, built by the different leading mill-furnishers, and from all we could see, those built by you seemed to be giving the best satisfaction, and this is why we bought our machinery of you. Our mill comes fully up to your guarantees, and the capacity runs over your guarantees. The bran and offal is practically free from flour, and our patent and bakers' flour compares favorably with any we have seen elsewhere. I don't think anyone can beat us. Your Roller Machines are the best we have seen; they run cool, and the interior does not sweat, and cause doughing of the flour. Judging from our success, we would recommend other millers to place their orders with you.

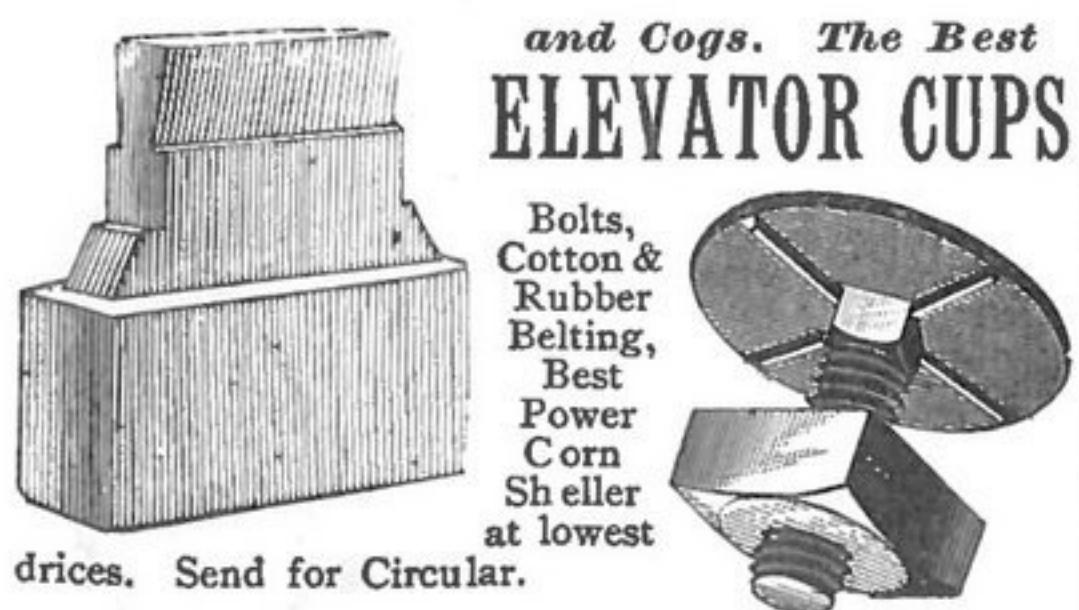
Yours truly, J. T. FORD.

Letters on file in our office from a large number of small roller millers giving as favorable reports as above. A portion will be published as occasion demands.

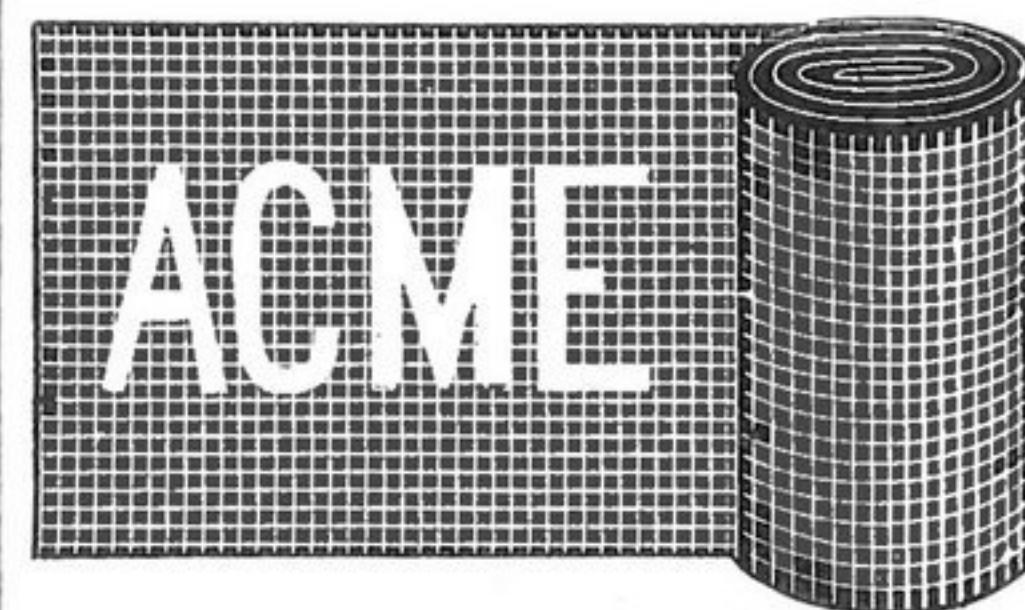
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Mill Builders & Contractors--Guarantee Results

Motive Power and Entire Equipment of a Modern Mill Furnished under one Contract.

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WIRE BOLTING CLOTH—STEEL, BRASS AND TINNED



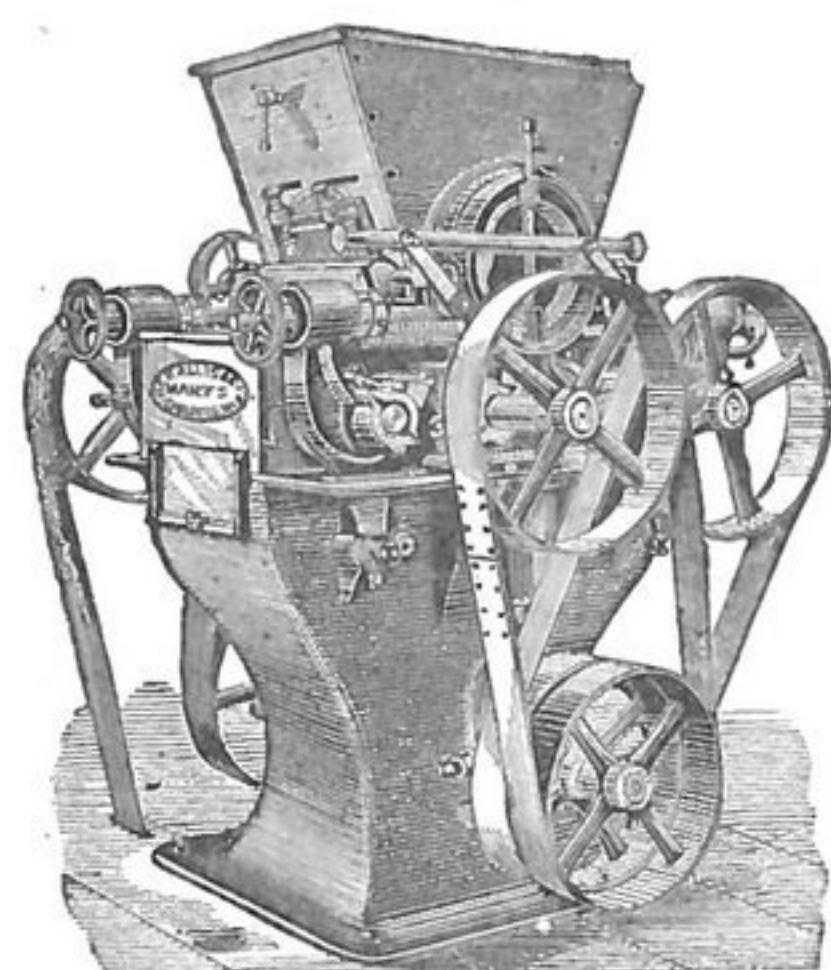
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Toledo Mill Picks and Stone Tool Mfg. Co.

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MILL PICKS.

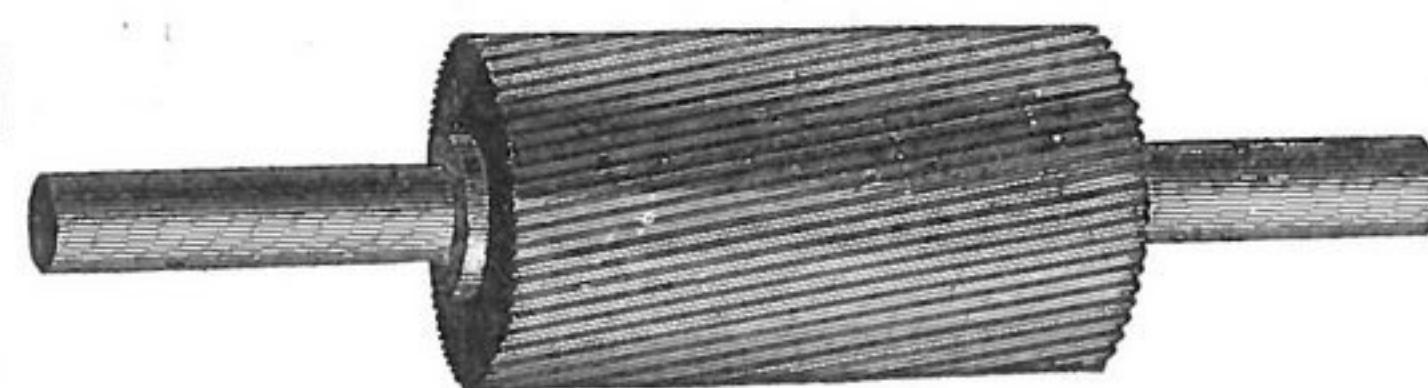
Made of the very best double-refined English cast steel. All work guaranteed. For terms and warranty, address GEO. W. HEARTLEY, No. 297 St. Clair Street, Toledo, O. Send for Circular. N. B.—All Mill Picks ground and ready for use (both old and new) before leaving the shop. No time and money lost grinding rough and newly dressed Picks. All come to hand ready for use.

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SHAFTING, PULLEYS, HANGERS COUPLING
AND MACHINE JOBBING.

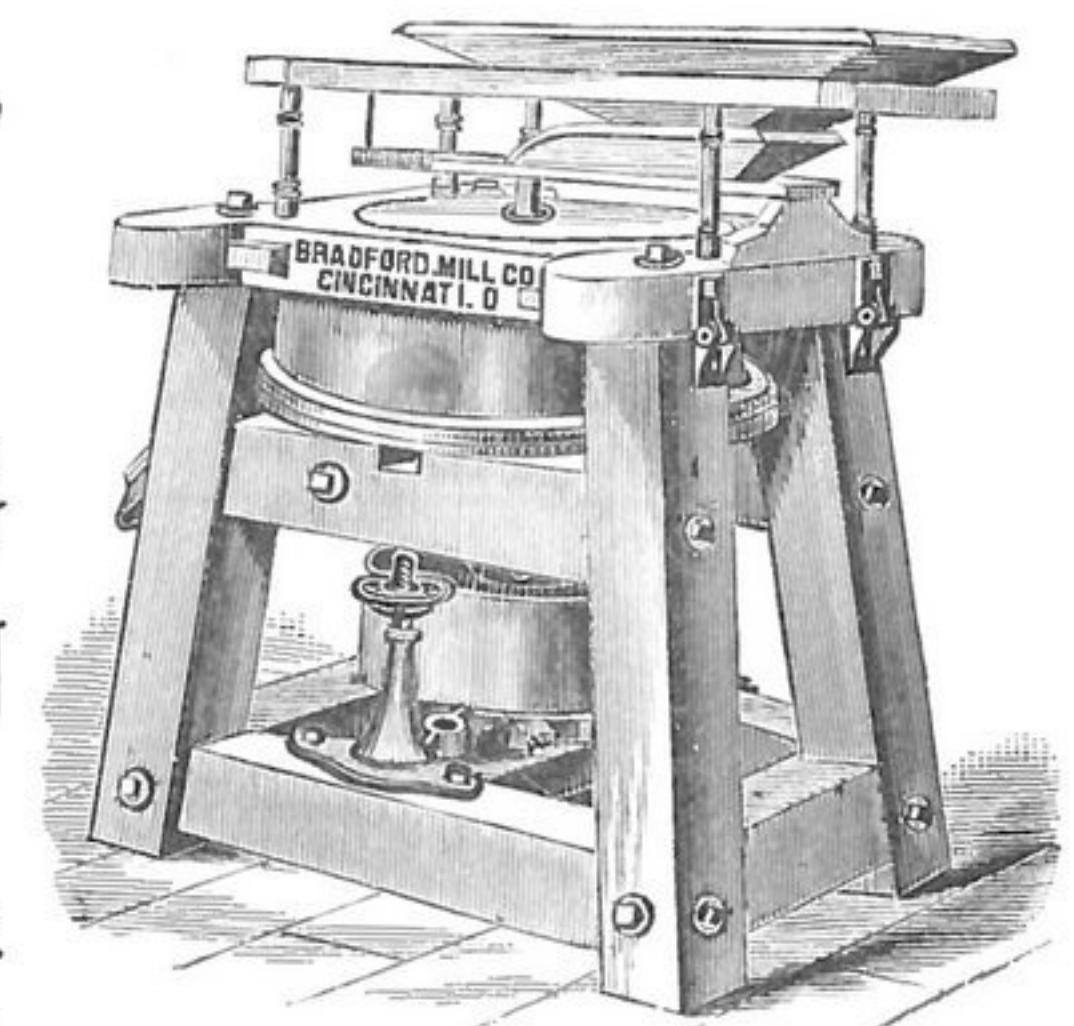
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Manufacture a Complete Line of
FLOUR MILL MACHINERY,
Including Portable Corn and Middlings Mills.

RE-GRINDING AND RE-CORRUGATING

PORCELAIN
ROLLS
RE-GROUND.CHILLED IRON
ROLLS
Re-Ground and
Re-Corrugated.

EIGHTH AND EVANS STREETS, - CINCINNATI, OHIO.



KEYSTONE CENTRIFUGAL REEL

PATENTED MAY 6th, 1884. —

Drag Brush Feed, Tightest Heads, Best Results. Cheapest and Best on the Market. Adapted to all Kinds of Milling. The New Drag Feed Thoroughly Protects the Silk. Sent on Trial to any Responsible Miller.

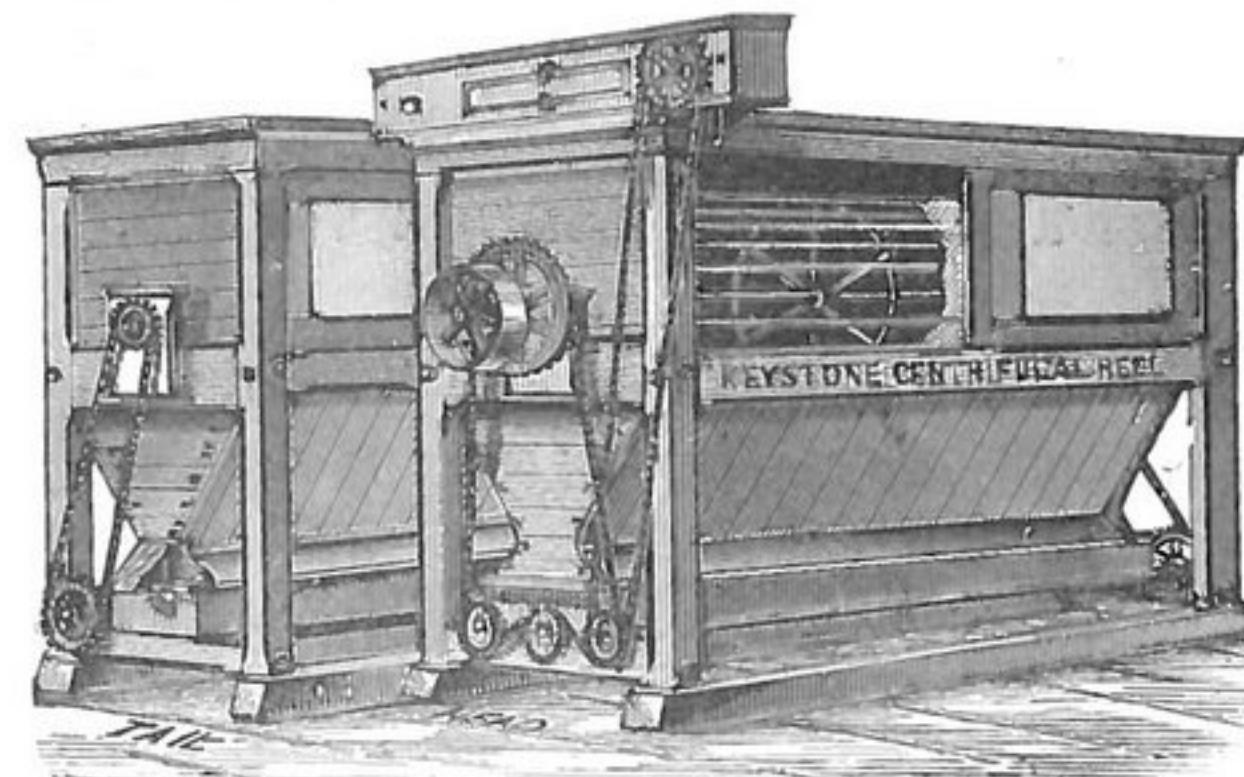
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Full Stock of Dufour and Dutch Anchor Bolting Cloth.

BEST QUALITY FRENCH BURR MILLSTONES, FOR MIDDLING, WHEAT AND FEED.

Leather, Rubber and Cotton Belting, Smut Machines, Purifiers and everything belonging to a Flour Mill furnished at Lowest Market Prices. For Circulars, Prices and Full Particulars, address the Manufacturer,

C. K. BULLOCK, 1357, 1359, 1361 RIDGE AVE., PHILADELPHIA, PENN.



The Rounds Sectional Roller Mill

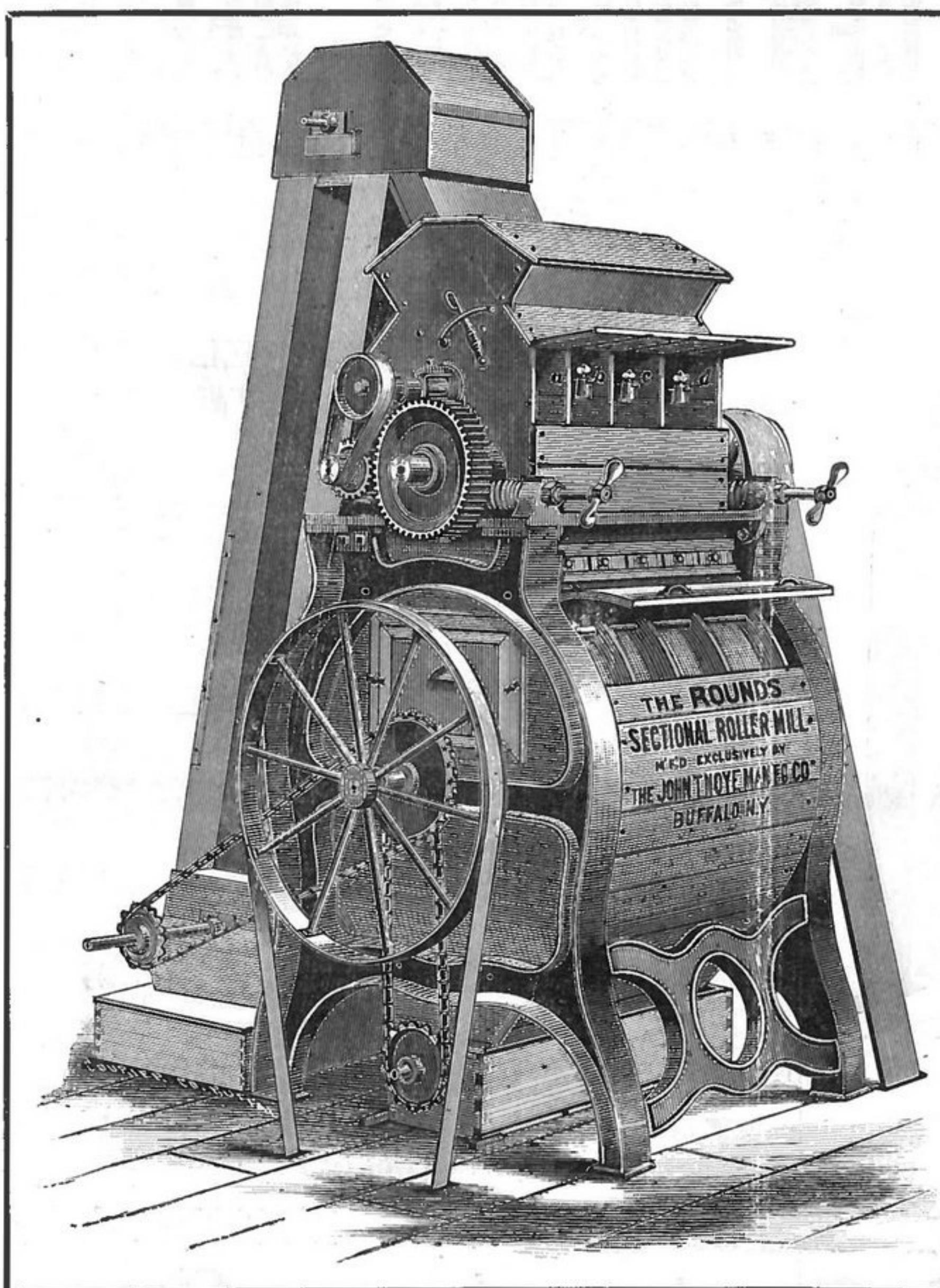
Is Especially Adapted for Custom and Exchange Millers.

Can be Adopted with less outlay of money, and will produce more satisfactory results than any other roller mill manufactured.

STEVENS CORRUGATIONS.

This mill is in successful operation in hundreds of mills, and not one has failed to come up to the capacity and work guaranteed.

CORRESPONDENCE SOLICITED.



Unquestionably the Roller Mill for Merchant Millers.

Perfect in its operation, and it requires less power than any similar roller mill in the world.

STEVENS CORRUGATIONS.

Enables the miller to adopt the roller mill system with less expense than by any other method.

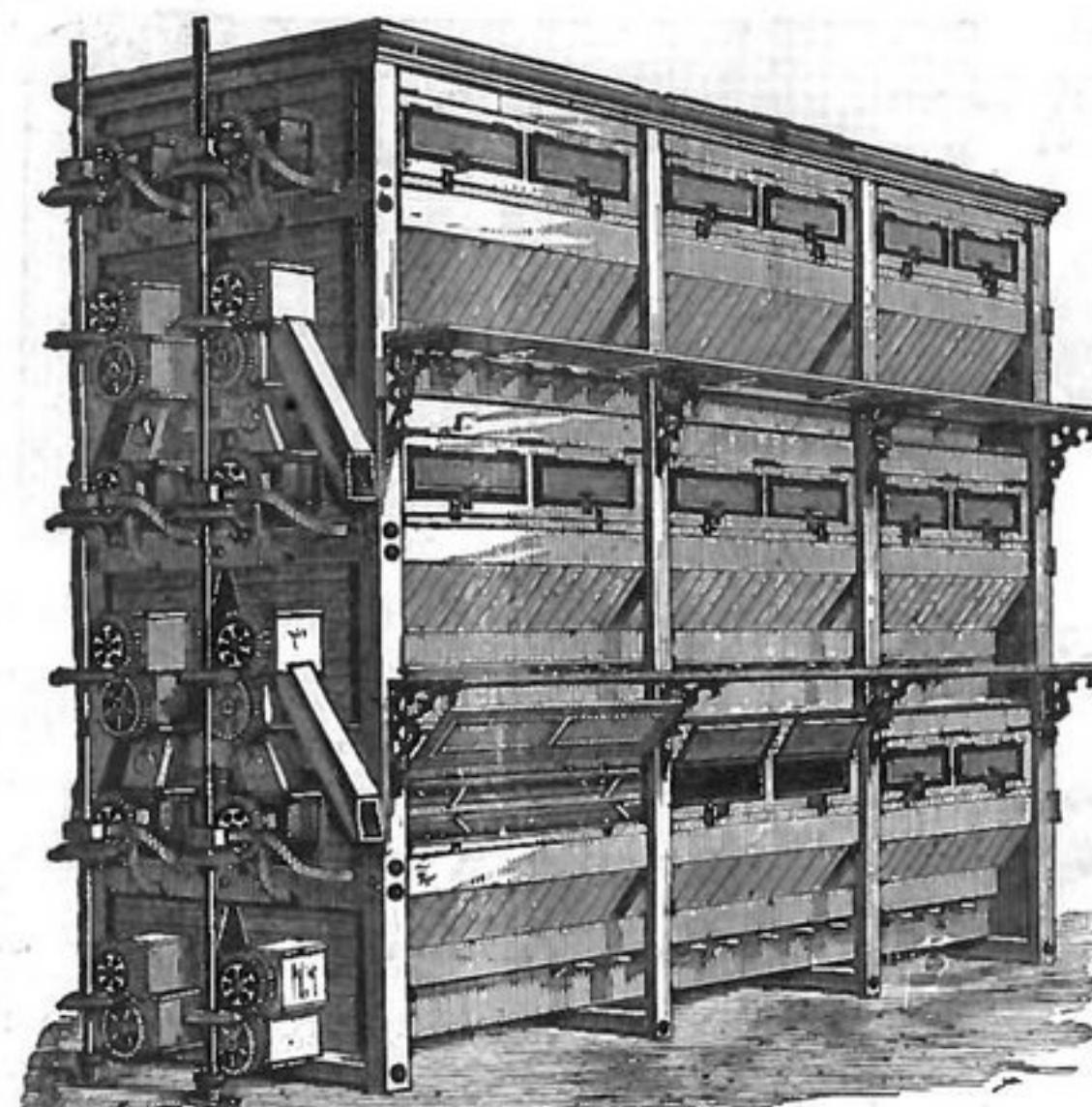
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